FEBRUARY, 1909. Vol. LIII. No. 372.

JOURNAL

OF THE

Royal United Service Institution.

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.

Editor - Captain H. Garbett, R.N. (Retired).

All communications (except those for perusal by the Editor only) to be addressed to the Secretary, Royal United Service Institution.

LONDON:

The Royal United Service Institution,

WHITEHALL, S.W.

Telegraphic Address: "RUSSATUS, LONDON."

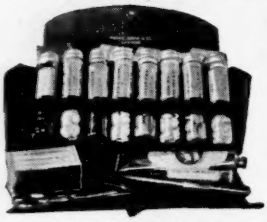
Printed by J. J. KELIHER & CO., LIMITED, 32, New Bridge Street, E.C., and 33, King William Street, E.C.

Sole Advertisement Contractor: Mr. C. GILBERT-WOOD, Dacre House, Arundel Street, Strand, London, W.C.
Telegraphic Address: "GILBERWOOD, LONDON."

All rights reserved.

Price Two Shillings.

Travellers' Medical Equipments



A convenient size for personal requirements. Illustrations of more complete outfits will be sent on request.

for the use of Explorers, Officers, Survey Parties, Expeditions in all Climates.

COMPACT. PORTABLE. RELIABLE.

Furnished with "P., D. & Co." Medicinal Preparations, which are absolutely pure, most convenient for immediate administration, and possess exceptional keeping properties.

PARKE, DAVIS & CO.,

50, BEAK ST., REGENT ST., LONDON, W.

The Army School

Near MAIDENHEAD

(APPROVED BY THE ARMY COUNCIL).

Head Master:

E. G. A. BECKWITH, M.A. Oxon.

(Late Exhibitioner of Winchester & Magdalen College).

IN 1905 the Army School was founded by the present Head Master with the object of supplying a need which has been admittedly felt for a long period, viz., an education especially adapted to the Army (Woolwich and Sandhurst) Curriculum, but resembling in all other respects that of a Public School.

In this way the pupils reap all the advantages of the best Private Tutors, *i.e.*, small classes and individual attention (in so far as the Staff consists of specialists in the Army subjects), at fees within reach of the average officer's income, while a spirit of discipline and *esprit de corps* is fostered.

The average number of boys (12-18 years of age) is slightly over 40. The Staff consists of 9 Masters (7 Resident).

Since 1905 there have been over FIFTY Successes.

SUCCESSES, 1907-1908 (JULY):

WOOLWICH—ONE. | QUALIFYING CERTIFICATES—SIXTEEN.
SANDHURST—ELEVEN. | LEAVING CERTIFICATES (Woolwich)—THREE.

For FEES, &c. (reduced for Sons of Officers), apply to the Head Master.

"SHANNON" Roll Top Desks

From £4 0 0

Are used by Officers all over the World.

Write for Illustrated Catalogue to—

THE Shannon LIMITED

Ropemaker Street, E.C.

F. W. SCHAFER, MANAGING DIRECTOR.

LIPTONS

The Largest Tea and Provision Dealers in the World.

MANAGEMENT OF CANTEENS A SPECIALITY.

TERMS, PRICES, REBATES, &c., ON APPLICATION.

ALDERSHOT—Elms Road.
PORTSEA—35, Queen Street.
DEVONPORT—Holman's Buildings.
DUBLIN—23, Merchant's Quay.
GIBRALTAR—Grand Hotel Buildings.
MALTA—39, Strada Reale, Valletta.
ALEXANDRIA—Rue Adib.
CAIRO—9, Rue Osselli.
CALCUTTA—32/1, Dalhousie Square.
COLOMBO—Prince Street.
BOMBAY—Apollo Street.
KARACHI—Nicoll Road.

Head Offices—CITY ROAD, LONDON.

CONTENTS FOR FEBRUARY, 1909.

1. An Original Sketch of the Battle of Preston Pans, 21st September, 1745 ... ... *Frontispiece*
2. Secretary's Notes 145
3. The Battle of Preston Pans. Colonel H. W. Pearse, D.S.O. ... 151
4. Discussion on the Standard of Naval Strength 157
5. Defence of Harbours by Fortification. Brig.-General R. F. Johnson, C.M.G., R.A. (*concluded*) 185
6. Notes on the Gun Armament of Large Battleships. Translated from an Article by Lieutenant G. Pecori-Geraldi, Italian Navy, in the *Rivista Marittima* for April, 1908. Communicated by the Director of Naval Intelligence 194
7. The Von Löbell Annual Reports on Military Matters in 1907. *Précis* from the German by Lieut.-Colonel E. Gunter, *p.s.c.*, late East Lancashire Regiment (*concluded*) 213
8. The Use of the Ski, or Skee, in Foreign Armies Translated by Permission of the Minister of War from the *Revue Militaire des Armées Etrangères* 223
9. Naval Notes 230
10. Military Notes 246
11. Naval and Military Calendar for January, 1909 260
12. Contents of Foreign Periodicals for January, 1909 261
13. Notices of Books 267
14. Principal Additions to Library during January, 1909 270
15. Recent Publications of Military Interest 273

Concise Weekly Record of Markets and Prices.

FINANCE

Published by

THE CENTRAL STOCK EXCHANGE, Ltd.,

66, Cannon Street, London, E.C.

Post Free for Six Months to applicants naming this journal.

THE SOLANO
BATTLE - PRACTICE TARGET.

Orders for the above can now be placed with Messrs. GRAHAM & LATHAM, who have been appointed Sole Manufacturers. Delivery early in the New Year.

Write for particulars and Prices to—

GRAHAM & LATHAM

(LATE OF THE MORRIS AIMING TUBE AND AMMUNITION CO., LTD.),

CECIL COURT, CHARING CROSS ROAD.

Specialists in Practice Systems for Ordnance and Small Arms.

JEROME SACCONE, LTD.,

GIBRALTAR, 33, Railway Street, CHATHAM, and 6, Bank Buildings, Elm Grove, Southsea, PORTSMOUTH.

WINE, SPIRIT and CIGAR MERCHANTS to the

ARMY AND NAVY.

Price Lists and Samples on Application.

Wines shipped FREIGHT FREE to any Port in the Mediterranean or HALF FREIGHT TO INDIA and the Cape.

TELEGRAPHIC ADDRESS:—
"SACCONE, GIBRALTAR"; "SACCONE, CHATHAM"; "SACCONE, PORTSMOUTH."

FULL TARIFF SENT ON APPLICATION

TELEPHONE: 1025 & 304 Kensington. 1317 Paddington.

Telegrams: "EMBASSIES, LONDON."

The Electric Landaulet Co. Ltd.

ESTABLISHED OVER 7 YEARS.

Garage and Offices:
UPPER MANOR STREET
CHELSEA, S.W.
(Near Town Hall).

Branch Garage:
SALISBURY MEWS, CLOUCESTER PLACE
(Near Great Central Hotel).

DINNER, THEATRE, & SUPPER, till 1 a.m., 15s.

Petrol and Electric Cars on Hire for any Period.

The E.L.C. Gearless Electric Carriage.

ROYAL UNITED SERVICE INSTITUTION.

PRESIDENT.

Field Marshal H.R.H. The DUKE OF CONNAUGHT, K.G.

VICE-PRESIDENTS.

Admiral *Rt. Hon. Sir* J. C. DALRYMPLE-HAY, Bart., G.C.B., D.C.L., F.R.S.
General *Sir* F. C. A. STEPHENSON, G.C.B., Constable of the Tower.
Field-Marshal the *Viscount* WOLSELEY, K.P., G.C.B., O.M., G.C.M.G. (1905)
Field-Marshal *Right Hon.* the *Earl* ROBERTS, V.C., K.G., K.P., G.C.B., O.M., G.C.S.I., G.C.I.E., V.D. (1905)
Vice-Admiral *H.S.H. Prince* Louis of BATTENBERG, G.C.B., G.C.V.O., K.C.M.G., A.D.C. (1906).
Colonel *Right Hon. Sir* J. H. A Macdonald, K.C.B., V.D (1908).

CHAIRMAN.

Admiral of the Fleet the *Lord* WALTER KERR, G.C.B.

VICE-CHAIRMAN.

Lieut.-General H. D. HUTCHINSON, C.S.I.

MEMBERS OF THE COUNCIL.

Lieut.-General R. S. S. BADEN-POWELL, C.B., Commanding Northumbrian Division Territorial Force
Colonel J. H. BOR, C.M.G., R.M.A., A.D.C., Extra Equerry to H.R.H. The Prince of Wales.
Commander W. F. CABORNE, C.B., Royal Naval Reserve.
Vice-Admiral *sir* C. CAMPBELL, K.C.M.G., C.B., D.S.O.
Colonel T. S. CAVE, V.D., Commanding South Midland Brigade, Territorial Force.
Colonel R. B. COLVIN, C.B., Essex Yeomanry.
Colonel C. G. DONALD, C.B., half pay, late Royal Fusiliers.
Rear-Admiral A. M. FIELD, F.R.S., Hydrographer of the Navy.
Major-General *Sir* T. FRASER, K.C.B., C.M.G.
Lieut.-Colonel *Houble.* T. F. FREMANTLE, V.D., The Buckinghamshire Battalion, The Oxfordshire Light Infantry
Colonel LONSDALE A. HALE, late R.E.
Colonel J. A. L. HALDANE, C.B., D.S.O., A.D.M.O., War Office.
Colonel the *Viscount* HARDINGE, 6th Bn. the Rifle Brigade.
Colonel W. A. HILL, C.B., late 3rd Bn. The Gloucestershire Regiment.
Colonel W. C. HORSLEY, V.D., 28th Bn. The London Regiment
Colonel *Houble.* O. V. G. A. LUMLEY, Commanding 2nd South Midland Mounted Brigade, Territorial Force.
Lieutenant G. R. MALTBY, M.V.O., R.N. (retired).
Major-General *Sir* G. H. MARSHALL, K.C.B.
Colonel F. I. MAXSE, C.V.O., C.B., D.S.O., Commanding the Coldstream Guards and 3rd London Brigade, Territorial Force.
Admiral of the Fleet *Sir* G. H. U. NOEL, K.C.B., K.C.M.G.
Rear-Admiral E. J. W. SLADE, M.V.O.
Brigadier-General H. H. WILSON, C.B., D.S.O., Commandant of the Staff College.

Secretary and Curator.

Lieut.-Colonel A. LEETHAM, Royal Monmouthshire Royal Reserve Engineers, late 13th Hussars.

Editor.

Captain H. J. G. GARBETT, R.N. (retired).

Librarian.

Major C. H. WYLLY, late 1st Bn. South Staffordshire Regiment.

Assistant Secretary and Curator.

Captain B. E. SARGEAUNT, 12th Bn. The London Regiment

Auditors

Messrs. WILDE & FERGUSON DAVIE, Chartered Accountants, 61½, Fore Street, E.C.

The undermentioned can become members by intimating their wish to the Secretary, and either forwarding to him their subscription, or giving him a written authority on their bankers or agents for its payment:—Commissioned officers of the Royal Navy, Regular Army, Royal Marines, Militia, Indian and Colonial Naval and Military Forces, Imperial Yeomanry, Royal Naval Reserve, Volunteer Corps, and Cadet Battalions and Corps, as published in the Official Navy and Army Lists, together with retired officers of the same whose names are retained in the Navy or Army Lists, and Naval Cadets, and Cadets of the Royal Military Academy, Woolwich, Royal Military College, Sandhurst, and Royal Military College, Kingston, Canada, on the recommendation of their commanding officers.

Officers retired from the various Services enumerated above, whose names do not appear in the Navy or Army Lists, are eligible for election by ballot on the recommendation, on personal knowledge, of two members of the Institution.

The terms of subscription are:—

Annual. £1 1s 0d. entrance; and £1 1s. 0d. annual, payable on the 1st January each year.

Life. £15, payable in one sum.

Life. £15 15s., payable in three instalments of Five Guineas each; the first on joining the Institution, the others on the 1st January of each of the succeeding two years.

Members joining after the 1st October in any year are not called upon for any subscription the following year.

An extra payment of Ten Shillings entitles a member in the United Kingdom to the loan of Four Volumes at a time from the Library for a period of twelve months from the date of the subscription.

When a member desires to pay his subscription through his banker or agent, he should send to the Secretary a written authority as follows:—

To (Banker or Agents)

On receipt of this order please pay to Secretary, Royal United Service Institution, or order, my subscription to that Institution (according to the terms above).

Name in full.

Rank, Ship, or Regiment.

Address to which Journals and other communications should be sent.

The name of any member who fails to pay his annual subscription for two years is removed from the List of Members, but the member may be re-admitted as a new member on the usual terms.

Members of the United Service Institution of India on leave to the United Kingdom, and officers of the Colonial Naval and Military Forces who are temporarily in this country on duty, can become temporary members, and make use of the Institution on payment of Five Shillings per six months.

The Institution contains the best professional Library in the United Kingdom; an excellent collection of Maps and Charts; Reading and Smoking Rooms provided with the leading papers, periodicals, and writing materials: an interesting Museum; and a Theatre in which lectures upon professional subjects, followed by discussion, are frequently given.

The Journal, published monthly, is sent post free to all members. It contains the lectures given in the Theatre, articles on professional subjects, naval and military notes, book notices, &c.

NAVAL AND MILITARY BUSINESS DIRECTORY.

(By special appointment to H.R.H. the Prince of Wales).
JONES, CHALK & DAWSON,
TAILORS & MILITARY OUTFITTERS,
6, Sackville Street, London, W.

PHOTOGRAPHIC PORTRAITS by
G. PORTER-HIGGINS.
Late R.M.A., Woolwich.
Medallist: Exhibitor, R.P.S. Genuine Artistic Work.
Leighton Studios,
Redcliffe Road, South Kensington.
Particulars sent upon application.

Mr. E. CARLISLE, M.A. (Cantab)
AND
Major M. H. GREGSON (late R.E.)
Prepare Candidates for all
Army Examinations at
5 & 7, Lexham Gardens, W.

CAPTAIN GALL AND
MR. GLADSTONE, M.A. (Oxon.)
(Late Captain Gall),
(Preparation by Lectures or Correspondence.)
Army Tutors,
90a, Gloucester Rd., South Kensington.

"Country Life"
MILD, **5d.** per oz.
MEDIUM— **4½d.** per oz.
Smoking Mixture.

LIPTONS
FOR
QUALITY.

PALMER & CO.,
Military, Hunting,
and Polo Boots.
56, MADDOX STREET, W.

Memorial Brasses & Bronzes.
J. WIPPELL & CO. LTD.
EXETER, and 4 & 5, Duncannon St., **LONDON.**
A Fully Illustrated List on Application.

NAVAL AND MILITARY PUBLICATIONS.

"DEFENDERS OF OUR EMPIRE"
Edited by C. Gilbert-Wood, F.R.G.S.
Part 2 will be ready shortly.
PRICE 1/- net.
AT ALL BOOKSELLERS.

"The Journal of the Royal Artillery."
MONTHLY, **2/6** NET.
The Royal Artillery Institution,
WOOLWICH, S.E.

"WEAPONS."
By B. E. SARGEAUNT
(Assistant Curator, R.U.S.I. Museum, Whitehall).
Price 2/6 Net.
HUGH REES, LTD., PALL MALL, S.W.

"THE NAVAL POCKET BOOK"
(ANNUAL).
Edited by GEOFFREY S. LAIRD CLOWES.
7/6 Net.
W. THACKER & Co., 2, Creed Lane, E.C.

"THE CAVALRY JOURNAL."
PUBLISHED QUARTERLY.
JANUARY, APRIL, JULY and OCTOBER.
January Issue now ready.
Price 2s. 6d. Net.
C. GILBERT-WOOD, Arundel Street, W.C.

Now Ready:
The Historical Records of the Fifth (Royal Irish) Lancers.
By W. T. WILLCOX. Containing Maps, 3-colour and half-tone plates, &c. Price **2 Guineas** net. All booksellers, or from the Publishers,
ARTHUR DOUBLEDAY & Co., Ltd.,
8, York Buildings, Adelphi, London.

"THE ROYAL NAVY LIST"
AND
"NAVAL RECORDER."
QUARTERLY (over 700 pages).
30th year of Publication.
10/- Post Free.

The GILBERT-WOOD PRESS
Newspaper Proprietors, Publishers,
Lithographic & Letterpress Printers,
and Advertisement Contractors.
5 & 3, ARUNDEL STREET, LONDON, W.C.
SOLE Advertisement Contractors to this Journal and also to most other Official Service Publications.
Telegrams: GILBERWOOD, LONDON. Telephone: 4680 Gerrard.

NAVAL AND MILITARY HOTEL DIRECTORY.

BOURNEMOUTH.

Royal Bath Hotel.

OVERLOOKING PIER.

The only Hotel on the East Cliff.

LONDON.

Hotel Cecil.

ACCOMMODATION FOR 800 GUESTS.

The Largest and Most Magnificent Hotel in Europe.

Within Three Minutes of Charing Cross.

PLYMOUTH.

Royal Hotel. THE LEADING HOTEL.

Re-modelled; Re-furnished. Most central hotel in Plymouth. 200 rooms; electric light; lift. Spacious coffee room.

BRIGHTON.

Hotel Metropole.

FINEST SEASIDE HOTEL IN THE WORLD.

GORDON HOTELS, Ltd., Proprietors.

MALVERN.

Imperial Hotel.

ONLY HOTEL FACING SOUTH AND WEST WITH ELEVATOR.

BIRNAM HOTEL, BIRNAM,

PERTHSHIRE, N.B.

(Two minutes' walk from Birnam and Dunkeld Station.)

HIGH-CLASS FAMILY HOTEL

Tariff Moderate. Pure, bracing air. Finest Scenery in Scotland. Good Salmon and Trout Fishing free. Golf Course adjoins Hotel Grounds. Good Garage and Inspection Pit.

LUXURY. COMFORT. ECONOMY.

The Hotel Russell. :: Russell Square, W.C.

Provides for visitors to town the most **convenient, comfortable** and **economical** place of stay.

The Frederick Hotels, Ltd., Proprietors.

RAMSGATE.

The Granville Hotel.

Beautifully situated on the high cliffs overlooking Sea and Public Gardens. A magnificent position. The most comfortable Seaside Hotel on the South Coast.

Excellent and complete Turkish Bath, with Sea Water Plunge; also Ozone and other Baths. Hot and Cold Sea Water in Bath Rooms. Electric Light everywhere.

NAVAL AND MILITARY SOCIETIES AND CHARITIES.

MARINE SOCIETY.

TRAINING SHIP "WARSPITE,"

PATRON - - H.M. THE KING.

The Society, which maintains the Training Ship "Warspite" at Greenhithe, is supported by Voluntary Contributions.

Annual Subscriptions and Donations gratefully received by the Secretary, Lieut. H. T. A. BOSANQUET, R.N., Clarks Place, Bishopsgate Street, E.C.

THE

'ARETHUSA' & 'CHICHESTER'

TRAINING SHIPS FOR POOR BOYS are much in need of Funds.

President - THE EARL OF JERSEY, G.C.B.

Gifts Thankfully Received by Secretaries; 164, Shaftesbury Avenue, London, W.C.

THE SOLDIERS' AND SAILORS' FAMILIES ASSOCIATION.

To help the Wives and Families — of Soldiers and Sailors. —

Secretary, 23, Queen Anne's Gate, S.W.

Metropolitan Drinking Fountain and Cattle Trough Association.

The Committee very earnestly APPEAL for LIBERAL HELP to continue a work which has done so much to promote Temperance and alleviate suffering.

CAPT. W. SIMPSON, *Secretary*, 70, Victoria Street, S.W.

Dr. Barnardo's Homes:

National Incorporated Association.

FUNDS URGENTLY NEEDED.

18-26, STEPNEY CAUSEWAY, E.

CHARING CROSS HOSPITAL,

STRAND, W.C.

The Council earnestly appeal for donations. The Annual Income from Invested Property is only **£2,500,** while the Expenditure is **£23,000,** the Balance being derived from Voluntary Contributions. Average number of Patients received yearly, **22,000.**

NAVAL AND MILITARY MUSEUMS, &c.

ROYAL UNITED SERVICE MUSEUM

WHITEHALL.

This Museum, with the restored Rubens' Ceiling, and entirely rearranged, has now been re-opened to the Public.

GREENWICH HOSPITAL.

THE PAINTED HALL, NELSON'S RELICS, &c.

NAVAL MUSEUM, interesting collection of Models, &c.

OPEN DAILY, 10 till 4.

MESSRS. LONGMANS & CO.'S LIST.

In Morocco with General D'Amade. By REGINALD RANKIN, F.R.G.S., late War Correspondent for the *Times*, Author of "A Subaltern's Letters to his Wife," &c. With 35 Illustrations from Photographs and a Map. 8vo. 9s. net. (Inland Postage 5d.)

"Soldiers especially will read the work with interest, for it enters minutely into the details of the French organisation, strategy, and tactics, and the course of the campaign is illustrated by a map."—*The Scotsman.*

"This work has especial interest to the Military student in the careful detailing of a plan of campaign in all its minuteness under circumstances not familiar to the British Arms."—*Liverpool Post.*

The Russian Conquest of the Caucasus. By JOHN F. BADDELEY. With 5 Maps, 2 Plans, and 15 Portraits and other Illustrations. Royal 8vo. 21s. net. (Inland Postage 6d.)

"Mr. Baddeley has enriched military literature with a history of unique value, illustrated moreover, by a number of excellent illustrations of the chief actors in the bloody drama and of the mountainous country in which they operated. There are also some very good maps of a theatre of war of which Englishmen know but little."—*Broad Arrow.*

A Review of the History of Infantry. By E. M. LLOYD, Colonel, late Royal Engineers. Medium 8vo. 6s. net. (Inland Postage 5d.)

"We should like to see this volume in the hands of every branch of the Service, for the deductions to be drawn from its pages will be extremely useful to not only infantry men but to all interested, theoretically or practically, in the art of war. The records of infantry in the past are detailed here in a fashion which will not merely instruct but interest, for Colonel Lloyd has the faculty of the true historian of making the dead past live yet once more."—*War Office Times.*

Naval Warfare: its Historical Development. By BARON CURT VON MALTZAHN, Vice-Admiral (retired). Translated by J. COMBE MILLER. Crown 8vo. 2s. net. (Inland Postage 3d.)

"It would be difficult to discover any book whatever of which the diffusion among the thinking portion of the British public would be more likely to bring home to our countrymen a true perception of the nation's present position."—*Morning Post.*

Works by Lieut.-Col. G. F. R. HENDERSON,

Late Professor of Military Art and History, the Staff College.

Stonewall Jackson and the American Civil War. With an Introduction by FIELD-MARSHAL VISCOUNT WOLSELEY, K.P., G.C.B., &c. With 2 Portraits and 33 Maps and Plans. 2 Vols. Crown 8vo. 16s. net. (Inland Postage 6d.)

The Science of War. With a Memoir by FIELD-MARSHAL EARL ROBERTS, V.C. With a Photogravure Portrait of the Author and 4 Maps. 8vo. 14s. net. (Inland Postage 6d.)

LONGMANS, GREEN & CO., 39, Paternoster Row, London, E.C.

To Authors, Officers, &c.

Mr. C. GILBERT-WOOD, F.R.G.S., is open to give expert advice on the Publication of NAVAL AND MILITARY BOOKS, and also to undertake the Printing, Binding, and Publishing of same.

For terms, write or call:—

THE GILBERT-WOOD PRESS,

Dacre House and Granville House, Arundel Street, Strand, London, W.C.,

Or phone 4680 Gerrard, or wire to "Gilberwood," London.

JUST PUBLISHED.

Price 2s. 6d. net.
Postage 3d. extra.

"WEAPONS"

Being a Brief Discourse
on Hand-Weapons
other than Fire Arms.

BY

B. E. Sargeaunt

(Assistant Curator,
Royal United Service Museum, Whitehall).

C. GILBERT-WOOD,
Arundel Street, Strand, W.C.

HUGH REES, Ltd.,
Pall Mall, S.W.

"Beautifully Cool and Sweet Smoking."

Player's
Navy Cut
Tobacco and Cigarettes

PLAYER'S NAVY CUT

0492

Regd. No. 154011.
In Packets and Tins only.

RATNER IMPROVED SAFES

AFFORD THE GREATEST SECURITY AGAINST BOTH

FIRE AND THIEVES.

The Photo at side shows a Ratner Safe which preserved its contents intact in a serious fire at Leicester early this year.

Contents of another maker's safe were absolutely destroyed.

WRITE FOR LIST TO

RATNER
SAFE CO., LTD.,
51, Moorgate St.,
LONDON, E.C.

DO YOU WANT

a Large Sample Box of the FINEST CIGARS in the World (next to Havanas); Egyptian, Turkish, or Virginia Cigarettes; or Tobacco Mixture?

IF SO,

Send Stamps, P.O., or Cheque for **2/6** for any one box, quoting the following Number, or **15/-** for the lot.

No. 1—**JAMAICA CIGARS.**
No. 2—**EGYPTIAN CIGARETTES.**
No. 3—**TURKISH CIGARETTES.**
No. 4—**VIRGINIA CIGARETTES.**
No. 5—**TOBACCO MIXTURE.**
No. 6—**LADIES' CIGARETTES.**

Crests or Initials printed on each Cigarette and on all Box Lids free of extra cost for Orders of 1,000 at a time.

JAMRACH & CO.

199, PICCADILLY, LONDON.

Cigar and Cigarette Specialists.

OFFICE HOURS: 9.30 to 6.30. SATURDAYS: 9.30 to 2.30.
Suppliers to the Nobility. Established 1871.

The

GOLDSMITHS & SILVERSMITHS

COMPANY, Ltd.

Only Showrooms } **112, REGENT STREET, W.**

Solid Silver Table Ware.

MOST BEAUTIFUL & EXCLUSIVE DESIGNS.

HIGHEST QUALITY.

PERFECTION OF WORKMANSHIP.

VALUE BEYOND COMPETITION.

Illustrated Catalogue post free.

Wedding Presents, Mess Plate, &c.

"The Company's great success in all parts of the world is attributable to the admirable principles upon which their business is conducted."

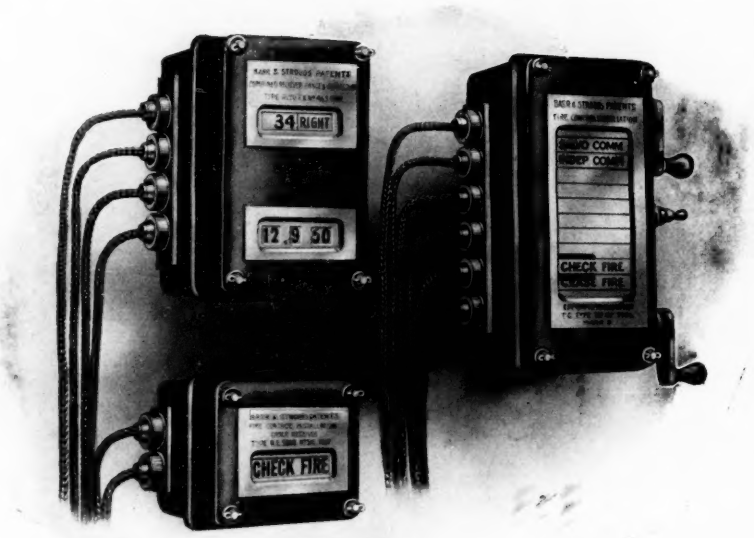
Selections on approval, carriage paid.

The

GOLDSMITHS & SILVERSMITHS COMPANY, Ltd.

with which is incorporated THE GOLDSMITHS' ALLIANCE CO. (A. B. Savory & Sons), late of Cornhill, E.C.

112, REGENT STREET, LONDON, W.



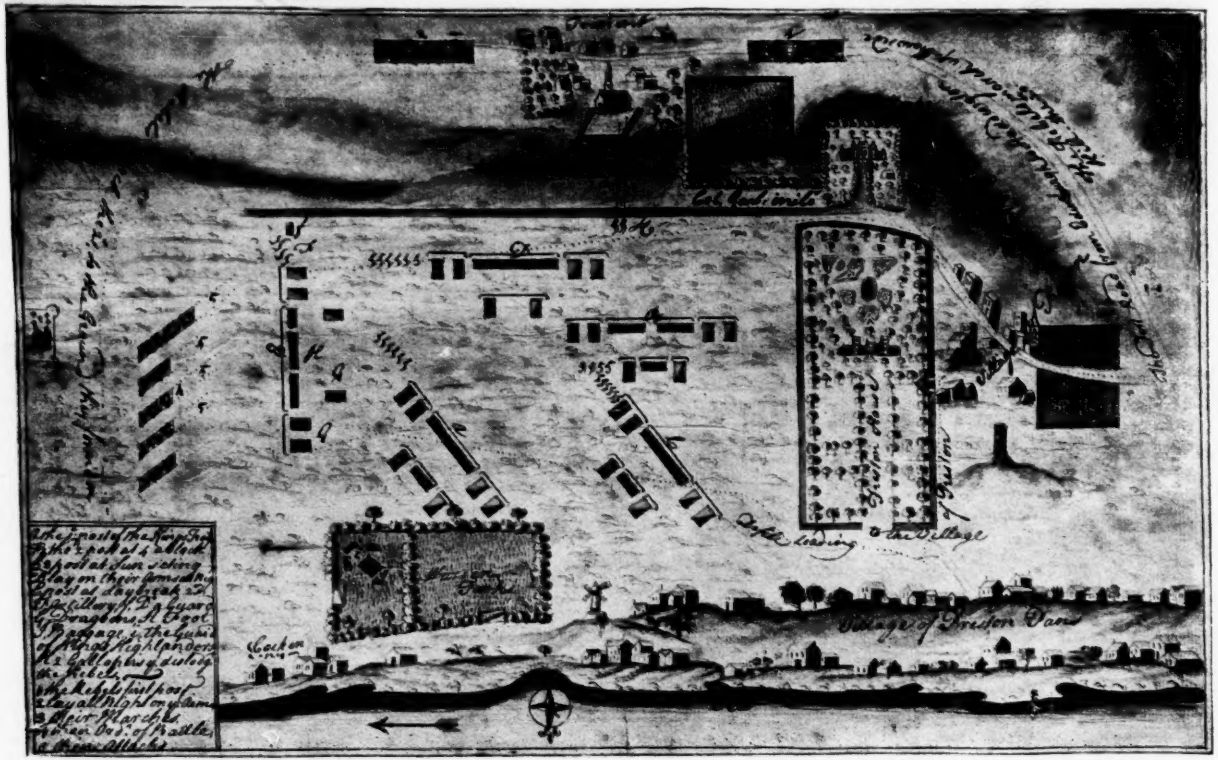
BARR AND STROUD'S PATENTS.

FIRE CONTROL INSTRUMENTS.

The above illustration shows a combined Deflection, Order and Range **Transmitter** controlling a combined Deflection and Range Receiver, and a separate Order Receiver.

These instruments are used for signalling Deflections, Orders, and Ranges, or any other desired information, from the Control Station on board ship to the various gun stations.

BARR AND STROUD,
ANNIESLAND,
GLASGOW.



A Sketch of the Battle of Preston Pans, fought 21st September, 1745, drawn by Lieut.-General Jordan, when Colonel 41st Regiment of Foot, who was present as a Staff Officer at the battle and died in 1784. This Sketch is now in the Museum of the Royal United Service Institution.

THE JOURNAL
OF THE
ROYAL UNITED SERVICE INSTITUTION

VOL. LIII. FEBRUARY, 1909. No. 372.

[*Authors alone are responsible for the contents of their respective Papers.*]

SECRETARY'S NOTES.

I. ROYAL VISIT.

Admiral His Royal Highness the Prince of Wales, K.G., visited the Museum on the morning of 3rd February, and, after inspecting the Collection of Relics in commemoration of the centenary of the death at Corunna of Lieut.-General Sir John Moore, K.B., made a general tour of the Museum, and expressed himself well satisfied with its condition and appearance.

II. AWARD OF CHESNEY GOLD MEDAL.

The Council has awarded the Chesney Gold Medal to the Honourable J. W. Fortescue, M.V.O., in consideration of his valuable military work, "The History of the British Army." Only two previous awards of this Medal have been made, one to Rear-Admiral A. T. Mahan, United States Navy, and the other to Major-General Sir J. F. Maurice, K.C.B. The Medal is only granted to the author of "an original literary work treating of naval or military science and literature, and which has a bearing on the welfare of the British Empire."

III. MILITARY ESSAY, 1909.

The following is the subject of the Essay for the year, 1909:—

Data for the Essay.

(1) The present organisation and strength of the Territorial Force.
(2) The present approved system of raising the Territorial Force.
(3) The present system for obtaining and training Officers.
(4) The present amount of obligatory training.
(5) The financial basis to be approximately the present Territorial Force Estimates.

Subject of the Essay.

(1) Working from the foregoing data, to offer in full detail suggestions as to the mode of training and preparing, during the periods of instruction, the Officers and Non-Commissioned Officers to become efficient in the arms to which they respectively belong.
(2) Next, the methods in which, by supplementary voluntary work in private time, the Officers and Non-Commissioned Officers can themselves increase their personal efficiency.

(3) Other sources, besides those at present officially recognised, from which a further supply of Officers and Non-Commissioned Officers can be obtained.

All Essays must be received on or before 30th November. Further details appear on a slip enclosed in this number of the JOURNAL.

IV. OFFICERS JOINED.

The following Officers joined the Institution during the month of January :—

Sub-Lieutenant H. Matthews, R.N.
Captain H. L. Lewis, R.E.
Captain C. H. Hannington, R.R.F.A.
Lieutenant W. A. Egerton, R.N.
Major T. B. Hill, R.F.A.
Captain C. Evans, R.F.A.
Major E. C. Bullock, R.F.A. (t.).
Lieutenant B. G. Washington, R.N.
Second-Lieutenant E. W. R. Hadden, 4th Battalion Oxfordshire and Buckinghamshire Light Infantry.
Captain O. M. Torkington, Scottish Rifles.
Lieutenant A. A. Mackintosh, Royal Horse Guards.
Lieut.-Colonel C. E. E. Curtoys, R.M.L.I.
Captain C. L. Perrin, Indian Army.
Lieutenant R. Burges, R.N.
Captain H. D. W. Lloyd, Scottish Rifles.
Major J. J. Richardson, 11th Hussars.
Captain J. Stewart, Royal Highlanders.
Lieutenant F. L. Tottenham, R.N.
Second-Lieutenant C. A. L. Lewis, 4th Battalion Royal Berkshire Regiment.
Captain J. F. Hodgkinson, 4th Battalion Royal Dublin Fusiliers.
Captain W. Vincent, 3rd Battalion Duke of Cornwall's Light Infantry.
Captain H. F. P. Percival, D.S.O., A.S.C.
Lieutenant R. A. Jones, R.H.A.
Captain C. C. H. Hogg, R.E.
Captain E. R. Fitzpatrick, Loyal North Lancashire Regiment.
Captain T. H. C. Nunn, D.S.O., Royal West Kent Regiment.
Major E. A. Horsford, Yorkshire Regiment.
Major H. D. Bramwell, 15th Hussars.
Captain T. P. Johnson, A.S.C.

V. The under-mentioned Officers have been nominated for the vacancies on the Council, and a Ballot will be held at the Anniversary Meeting on 2nd March, at 4 p.m. :—

Regular Army (3 Vacancies).

Colonel C. G. Donald, C.B., half-pay, late Royal Fusiliers.
Colonel L. A. Hale, late R.E.
Lieut.-General Sir E. T. H. Hutton, K.C.M.G., C.B.
Colonel Honble. O. V. G. A. Lumley, half-pay, late 11th Hussars, Commanding 1st South Midland Mounted Brigade, Territorial Force.
Brigadier-General Sir H. S. Rawlinson, Bart., C.V.O., C.B., Commanding 2nd Infantry Brigade.

Special Reserve (1 Vacancy).

Colonel W. A. Hill, C.B., late 3rd Bn. the Gloucestershire Regiment.

Territorial Force, Mounted Branches (1 Vacancy).

Colonel R. B. Colvin, C.B., Essex Yeomanry.

Territorial Force, Infantry (2 Vacancies).

Colonel the Lord Bingham, 5th Battalion the London Regiment (London Rifle Brigade).

Colonel T. S. Cave, Commanding South Midland Brigade, Territorial Force.

Colonel J. W. Greig, 14th Battalion the London Regiment (London Scottish).

Colonel H. C. C. D. Simpson, Commanding Territorial Artillery, Western Command.

Royal Naval Reserve (1 Vacancy).

Commander W. F. Caborne, C.B., R.N.R. (retired).

VI. JOURNAL.

The Council, considering it to be of interest to the Members, publishes the details of the cost of the JOURNAL for the year 1908:—

Receipts.	£	s.	d.	*Expenditure.*	£	s.	d.
Sale of JOURNAL - -	241	12	1	Printing - - -	1,631	12	4
Advertisements in JOURNAL - - -	169	3	4	Incidental printing, including Lecture slips, etc. - - - -	235	9	9
	410	15	5	Postage of JOURNAL -	526	5	9
				Literary services - -	90	0	0
				Editor's salary - -	350	0	0
Cost for the year - -	2,477	12	11	Shorthand notes - -	55	0	6
	£2,888	8	4		£2,888	8	4

VII. LENDING LIBRARY.

Officers subscribing to the Lending Library are particularly requested to enclose a slip, recording their names, with any books returned by them, as in many instances there are several copies of the same work, and the name of the Officer returning them is a necessity.

VIII. LECTURES.

Major-General Sir G. H. Marshall, K.C.B., will preside at the Lecture on 17th February by the Rev. Canon Edgar Sheppard, C.V.O., DD., sub-Dean of His Majesty's Chapels Royal, on "Whitehall Palace and the Execution of King Charles I." (Part 2).

General Sir W. G. Nicholson, G.C.B., Chief of the General Staff, will preside at the Lecture on 24th February by Lieut.-General H. D. Hutchinson, C.S.I., on "The Fortune of War."

IX. ANNIVERSARY MEETING.

The Anniversary Meeting will be held on Tuesday, 2nd March, at 4 p.m., when the following alterations of the Bye-Laws will be submitted by the Council:—Chapter III., Section I., which now reads:

"The following are eligible for membership without ballot:—Princes of the Blood Royal, Lieutenants of Counties, Governors,

Deputy Governors, and Administrators of Colonies and Dependencies, and the following whose names appear in the official Navy and Army Lists:—Commissioned Officers of the Royal Navy, Regular Army, Royal Marines, Militia, Indian and Colonial Naval and Military Forces, Royal Naval Reserve, Imperial Yeomanry, Volunteers, Volunteer-Cadet Battalions and Corps, Midshipmen of the Royal Navy and Royal Naval Reserve, Naval Cadets, and retired officers of the above ranks."

to be made to read as follows:

"The following are eligible for membership without ballot:—Princes of the Blood Royal, Lieutenants of Counties, Governors, Deputy Governors, and Administrators of Colonies and Dependencies, and the following whose names appear in the official Navy and Army Lists:—Commissioned Officers of the Royal Navy, Regular Army, Royal Marines, Special Reserve, Reserve of Officers, Militia, Indian and Colonial Naval and Military Forces, Territorial Force, Royal Naval Reserve, Yeomanry, Volunteers, Volunteer-Cadet Battalions and Corps, Midshipmen of the Royal Navy and Royal Naval Reserve, Naval Cadets, and retired officers of the above ranks."

Chapter III., Section II., which now reads:

"The following are eligible for membership by ballot of the Council:—Officers retired from the Services enumerated above, and whose names do not appear in the official Navy and Army Lists, Cadets of the Royal Military Academy, Royal Military College, and Royal Military College, Kingston, Canada, Officers of recognised Indian and Colonial Military Police and similar bodies, Officers of the Royal Irish Constabulary, retired Governors, Deputy Governors, and Administrators of Colonies and Dependencies, Deputy Lieutenants of Counties, Civil Functionaries, who are or have been attached to the Naval and Military Departments, the Master, Deputy Master, and Elder Brethren of the Trinity House, and Navy and Army Agents,"

to be made to read as follows in the latter lines:

"Administrators of Colonies and Dependencies, Deputy Lieutenants of Counties, Chairmen and Members of Territorial Force Associations, Secretaries of Territorial Force Associations, Civil Functionaries, who are, etc."

Chapter IV., Section II., which now reads:

"It is hereby declared that the proportion of Naval and Military Members shall be as one to two. The Naval Members of the Council shall comprise six Officers of the Royal Navy, one of the Royal Marines, and one of the Royal Naval Reserve. The Military Members of the Council shall comprise ten Officers of the Regular Army, two of the Militia, one of the Yeomanry, and three of the Volunteer Forces,"

to be made to read as follows in the latter lines:

"The Military Members of the Council shall comprise ten Officers of the Regular Army, two of the Special Reserve, and four of the Territorial Force, of whom one shall belong to the Mounted Branch. Retired Officers of the above-mentioned services shall be eligible, including those of the late Militia and Volunteers."

X. ADDITIONS TO THE MUSEUM.

(991) Thirty-five Buttons of Militia Regiments, as worn previous to the year 1881.—*Given by Lieut.-Colonel E. A. H. Webb.*

(992) Officer's Helmet-plate, Belt Buckle, Cap Badge, and Button of the late Royal Engineers Militia.—*Given by Lieut.-Colonel A. Leetham, Curator of the Museum.*

(3328) The Pistol of Lieut.-General Sir John Moore, K.B., being one of English make, double-barrelled, with flint-lock. The barrels are not placed side by side, as is usual, but are over and under. A revolving bolt blocks communication with the lower barrel whilst the upper one is being discharged; when this bolt is turned, a touch-hole appears which gives direct access from the pan to the lower barrel.

The weapon was given by Sir John Moore to Colonel William Havelock, K.H., one of his staff, who was the great-uncle of the lender. Colonel Havelock was subsequently present at the Battle of Waterloo, and was killed at the head of his Regiment, the 14th Light Dragoons, at Ramnuggar, in 1849.—*Deposited by Captain Sir H. S. M. Havelock-Allan, Bart., 4th Battalion The Durham Light Infantry.*

(3329) Gold Watch, by Collier, London, of Lieut.-General Sir John Moore, K.B., together with the Key for winding it and the Gold Chain with two Seals attached, impressions of which are seen in wax alongside, the motto being "Duris non frangor."
—*Deposited by Miss Carrick Moore.*

(3330) Field-Glass, by Abraham, Bath, of Lieut.-General Sir John Moore, K.B. When fully extended it measures forty-one inches.—*Deposited by Miss Carrick Moore.*

(3331) Two Buttons (one with a portion of cloth in the neck) cut from the Coat of Lieut.-General Sir John Moore, K.B., previous to his burial, by his Military Secretary, Major John Colborne (afterwards Lord Seaton).
—*Deposited by The Hon. Lady Montgomery-Moore (Lord Seaton's Daughter).*

(3332) A Gold Seal, given to Lieut.-General Sir John Moore, K.B., by Lady Hester Stanhope. It is curious in design, and contains two smaller seals.
—*Deposited by General Sir A. G. Montgomery-Moore, K.C.B.*

(3300) Letter written by Lord Seaton (at the time Major John Colborne) to Mrs. Duke, giving an account of the death of Lieut.-General Sir John Moore, K.B.

(Field-Marshal Lord Seaton, G.C.B., G.C.M.G., who was Military Secretary to Sir John Moore, was born in the year 1778. He was educated at Christ's Hospital and at Winchester. He served through the Peninsula and Waterloo Campaigns, and attained the rank of Field-Marshal in 1860. He was raised to the peerage in 1839 and died in 1863.)

"Ibbotsons,
"Vere Street,
"January, 1809.

"My dear Delia,

"Knowing you would be uneasy I sent you a short note immediately after the action. I hope it arrived before the

public news reached you, as the officer who carried the despatches put it into the Post Office at Falmouth.

"I ought to have been sent with Gen. hope's letter, but Sir D. Baird preferred one of his own Aides de Camp.

"General Hope sent me to London as soon as we arrived at Portsmouth with a copy of his despatch, and I only reached this place a few hours after the original.

"It seems a dream. I can scarcely believe that I am in England, indeed, this is the first day since the action I have had time to reflect and lament my friend, he was a noble fellow. Had I not seen him die I should have thought it impossible for the firmest mind to have endured bodily pain with such indifference, with such calm serenity, for, although when in health and sound, one conceives a possibility of bearing every ill, yet the stoutest hearts yield to nature and sink under the pain of a mutilated body.

"Genl. Moore was struck on his left breast and . . . . by a cannon shot which . . . . his arm, lacerated his . . . . and the whole of his left side and lungs from the . . . . out of the blood. I should have thought he would have instantly expired, his voice was rather hoarse from inward bleeding. When knocked off his horse he did not say anything, nor did it make him change countenance, he was carried away in a blanket and spoke to everyone as he passed. I remained out until the action was over, and when dark I rode to Corunna. On my entering the room the General heard me, and spoke most kindly to me, and said, Colborne, have we beaten the French, I replied, yes, we have repulsed them in every point. Well, says he, that is a satisfaction, I hope my country will do me justice. He then said to Col. Anderson, go to Colonel Gordon when you arrive in England, tell him it is my wish, remember, I request that Colborne gets a Lt. Colonelcy. He then said remember me to Genl. Paget, Genl. Edward Paget—he is a fine fellow. He asked everyone that came into the room about the enemy and died in a moment after he had spoken without the least symptom of pain. He was burried by his own Aides de Camp and myself on a bastion at Corunna.

"The Duke of York received me with great kindness, and was much affected in reading General Hope's despatch.

"I can tell you nothing about myself. The greater part of the Fleet is not in, but I have much business to finish, if possible, I need not assure you how happy I shall be to pay Duke and little Delia a visit, remember me to them.

"And believe me, most affectionately yours,

"J. COLBORNE."

Deposited by General Sir A. G. Montgomery-Moore, K.C.B.

XI. CHANGE OF DATE OF LECTURE.

The Lecture by Major W. H. Greenly, D.S.O., on "The Cavalry of Frederick the Great, its Training, Leading, and Employment in War," which was to have been delivered on Wednesday, 3rd March, will be given on Wednesday, 31st March, at 3 p.m. General Sir J. D. P. French, G.C.V.O., K.C.B., K.C.M.G., Inspector-General of the Forces, will preside.

THE BATTLE OF PRESTON PANS.

By Colonel H. W. PEARSE, D.S.O.

THE curious old military sketch reproduced as the frontispiece has the merit, in addition to that of being highly intelligible, of having been drawn by an eye-witness immediately after the event. The artist, Captain Jordan Wren, of Murray's Regiment (now the 1st Battalion Hampshire Regiment), served at Preston Pans on the Staff of Lieut.-General Sir John Cope, the English Commander-in-Chief in Scotland.

Wren was born in 1694, entered Murray's Regiment as ensign in 1720, became a captain in February, 1745, and served in that rank throughout the campaign against Prince Charles Edward Stuart. For his services in the '45 Wren received the "Cumberland gold medal," and dying a lieut.-general in 1784, at the age of ninety, he bequeathed the medal to his nephew, Captain John Ridout, as an heirloom, in the following terms:—"My gold Cumberland medal I bequeath to a loyal possessor till time shall be no more, in honour of a Prince by whose courage and conduct the English maintained their religion and laws, and whose bust dignifies the gold."

Such was the view taken by the large majority of Englishmen at the time of Prince Charles Edward's rash attempt to regain for his father the throne lost by his grandfather, and in spite of the sympathy elicited by courage and misfortune, there are few Englishmen or Scotchmen to-day who seriously wish that the '45 had resulted in a Stuart restoration.

The events of the brief campaign are so well known in its main features, though very inaccurately as to details, that an outline of the movements leading up to the action of Preston Pans will suffice.

Encouraged by the heavy losses of the small English Army at the battle of Fontenoy, and by the continued absence on the Continent of King George II. and the Commander-in-Chief, the Duke of Cumberland, Prince Charles Edward, who had long wished to attempt the recovery of his grandfather's throne, thought that the golden moment had arrived. There were in all Great Britain no more than 15,000 troops, many of which consisted of newly-raised regiments, and all of which were widely scattered and deficient of means of rapid concentration.

In Scotland, Sir John Cope, the local Commander-in-Chief, had but 3,000 men of all arms, part of whom were badly armed, and almost all without war experience. The two cavalry regiments available had been raised thirty years previously, in

consequence of the Jacobite rising of 1715; but they were indifferently trained, and were mismanaged during the brief campaign now to be described. Of the infantry regiments in Scotland one only was of trustworthy quality, the remainder having been raised as recently as 1741, and having suffered in discipline and training through the bad old custom of dispersing troops in small detachments. There were practically no artillerymen, the few guns that could take the field having to be manned by any persons who could be found possessed of a slight knowledge of gunnery.

Such were the royalist resources of Scotland when Prince Charles Edward Stuart, two months after Fontenoy, landed, on 25th July, 1745, at Moidart, about midway in the western coast of Scotland. The Prince was attended by no more than seven followers, but on the day (19th August) that, after preliminary negotiations with the chiefs, he hoisted his standard at Glenfinnan, 1,200 well-armed Highlanders, inured to war, enrolled themselves in his service.

Conscious that his best hope of success lay in an immediate advance on Edinburgh, where he had many sympathisers, the Prince promptly advanced through the western Highlands, his force daily gaining strength, until on arrival at Perth on 4th September, it numbered about 4,000.

At Perth, where the Prince's father had already been proclaimed as King, and he himself as Regent, a short halt was made in order to collect supplies for a further advance, and to organise the insurgent army.

Meanwhile we must turn to the action taken by Sir John Cope, who had lost no time in concerting measures to check the invaders.

Sir John was an experienced soldier—a man in the prime of life, full of energy and activity. He had entered the army in 1707, and had been made a Knight of the Bath—then a rare distinction for a commoner—for his services at the battle of Dettingen. As soon as he heard that Prince Charles was on the seas, Cope despatched his one trustworthy old infantry regiment to re-inforce the garrisons of the chain of forts stretching from Inverness to Fort William, approximately on the line of the Caledonian Canal of to-day. Then gathering up his scanty remaining resources, Cope, determined, if possible, to nip the rebellion in the bud, set off northward from Edinburgh at the head of 1,400 infantry, with 8 small guns and mortars, leaving the capital on 19th August, the day on which Prince Charles had hoisted his standard at Glenfinnan.

Sir John Cope's weak force was much hampered by the necessity of carrying its supplies and stores along with it, but, nevertheless, he moved boldly towards Fort William. As Cope advanced, however, he daily saw the situation become more unfavourable. The Highland loyalists were faint-hearted, and hung back from joining him, while the Prince's force daily became stronger and more confident.

Cope saw, too that his small body of raw troops, hampered by their unwieldy convoy, would stand no chance in an action among the mountains against the activeHighlanders, who would move on ground familiar to them and suited to their style of fighting. Abandoning his advance, therefore, Cope turned aside to Inverness, and despatched thence urgent messages to Edinburgh for transports to convey his troops southward, in time, if possible, to guard the capital. Prince Charles, however, saw the road clear before him, and recognising the opportunity thus offered, pushed straight on to Edinburgh, arriving on 15th September within eight miles of that city. He there found the Castle securely garrisoned; but the raw force of cavalry, the only defenders of the city, fled in a panic, and on 17th September the Prince entered Edinburgh unopposed at the head of 2,500 of his steadiest troops.

Sir John Cope, learning of the progress of the rebel army, marched from Inverness to Aberdeen, and there, meeting the transports from Edinburgh, embarked his troops, and landed at Dunbar on 16th September. Here he was joined by the two crestfallen cavalry regiments, which had abandoned Edinburgh, and by 200 loyal Highlanders under Lord Loudoun. Cope's force now totalled 2,300, with six guns, manned very indifferently by naval gunners.

On 19th September, Cope marched northward along the coast road, and on the following day came in sight of the rebel force, which, at the moment, was halted on high ground to the south of him, and so posted as to be difficult to attack. Cope, therefore, took up the strong position, shown in the drawing, hard by the village of Preston Pans, facing the rebel army, which was judged by competent observers to be about 5,000 strong.

The Prince, hearing of Cope's march from Dunbar, had gone out to meet him, and had wisely posted his army on the highest ground that he could find, so that if compelled to act on the defensive he should at least have the advantage of position. The hope of the Prince and of his chiefs lay, however, in the headlong onslaught, which had so often won the day in the past, and they eagerly looked for an opportunity for attack.

Sir John Cope, who had carefully reconnoitred the ground as he advanced, had, however, so well chosen his position that the rebels were at first much disconcerted, seeing that it appeared impossible for them to attack with any hope of success.

It was now past two o'clock. The weather was fine and the sun shone brightly. Only half a mile separated the two armies, and but five miles away lay Edinburgh, the prize of victory. The Highlanders cheered loudly and defiantly, and made more than one attempt to close on the Royal troops, and at about five in the afternoon, relying on their secure position and superior strength, divided their force into two bodies, one of which advanced boldly and threatened the English right. To meet this movement Sir John Cope formed his line obliquely

across the plain, and eventually this portion of the Highland army was withdrawn and fell back to its original position on the brow of the plateau west of Tranent. Cope then once more drew up his troops facing south, and darkness coming on, he threw out outposts of a strength sufficient to guard against a night attack from any quarter. Sir John also withdrew his 200 Highlanders from his fighting line, and placed them in charge of his baggage at Cockenzie House, bringing the infantry soldiers thus relieved back to their regiments.

Cope, having thus done his best as a good soldier, lay on the field in bivouac with his troops, waiting for the next day's inevitable battle. During the night Prince Charles and his chiefs anxiously consulted as to their best line of attack, for they had fully determined on action. They at first decided on making a considerable detour to their own right in order to come on Sir John Cope's left. A young Jacobite gentleman of Edinburgh, who had often shot over the ground where the English army lay, now informed Lord George Murray, the General of the Highland army, of a good dry pathway which led across the marsh directly to the required spot. Lord George at once had this path examined, found that it met all requirements, and determined to use it.

At about nine o'clock at night, "all the dogs in Tranent began to bark with the utmost fury, which continued till about half-past ten." The Royal officers correctly surmised that this clamour betokened a movement on the part of the enemy, and cavalry patrols were sent out to ascertain if the rebels intended to attack or retreat. The infantry meanwhile were ordered to stand to their arms, and about four o'clock on the morning of 21st September, finding that the Highlanders were approaching, Sir John Cope changed front to the left and awaited their attack.

The successive positions taken up by the English troops are marked A, B, C, and D on the drawing; those of the Highland army are marked 1, 2, and 3.

It cannot be said that the English army was surprised, for as the narrative shows, the enemy's movements had been closely watched, and the English line had taken up its new position before the attack was delivered. It seems clear, however, that by using the pathway, of the existence of which no one in Cope's army was aware, the Highlanders arrived within charging distance much sooner than they were expected, and before the preparations for their reception were entirly complete. Half an hour of daylight might have saved the day; but suddenly through the moving mist the Highlanders came in view, formed in two dense irregular lines, and all that the English general had time to do was to ride down the front of his line encouraging the troops to do their duty and stand firm.

It has often been said that the story of Preston Pans was simply that of a sudden irresistible rush on the one side and of an equally sudden panic on the other; but this was not the case.

On seeing the leading bodies of Highlanders approaching, the improvised gunners at once abandoned their duty, and Colonel Whiteford and the old Master-Gunner Griffith opened fire unaided, the one with the six light guns and the other with a similar number of mortars. This fire, slow as it necessarily was, for Colonel Whiteford was only able to fire five rounds, checked the charge of the Highlanders, and prompt action by the cavalry would have won the day. Brigadier Fowke, Colonel Whitney, and Captain Singleton, three of the cavalry officers, at once ordered an advance on the left flank of the Camerons, who were leading the Highland attack; but the cavalry hung back, and presently broke and fled. The infantry escort of two companies on the right of Whiteford's guns also behaved badly, and instead of opening fire on the crowded Highlanders, who were about thirty deep, fell back behind the guns.

All was now lost. The Highlanders, gallantly led by their chiefs and officers, charged sword in hand on the guns. Colonel Whiteford and Master-Gunner Griffith, who both fought to the last, were severely wounded and captured; the remainder of the cavalry followed the two squadrons on the British right, who had first failed in their duty, and left the field. The infantry of the left, seeing that they were deserted and that an overwhelming attack was presently coming down on them from their front and right, also gave way. Here and there isolated companies and small parties of men fought doggedly under their officers, but their fire was comparatively ineffective against the charging Highlanders, who carried all before them.

Cope himself, and the officers without exception, exerted themselves to the utmost to rally the men, but without avail. The troops dispersed, and soon the light-footed Highlanders were among them, cutting them down without mercy.

The victory of Prince Charles was complete. Of the British infantry not above 200 escaped. It is said that 500 were killed on the field and 1,200 made prisoners, of whom 900 were wounded, but these numbers were doubtless exaggerated, even allowing for the inclusion of camp followers, as Cope's total force of infantry, including the baggage guard, numbered 1,624 only. Among the mortally wounded was Colonel Gardiner, the unfortunate commander of Cope's cavalry, who fell, by a strange coincidence, close by the wall of his own park.

The remainder of the campaign may be told in a few words. After Preston Pans, the cause of Prince Charles seemed hopeful. All Scotland for a time was at his command, and at the end of October the Prince prepared to invade England at the head of an army of not less than 6,000 men. He crossed the border on 8th November, took Carlisle on the 15th, and marched on as far as Derby, causing a disgraceful panic in London. Here, however, his success ended. England, however alarmed, showed hardly any sympathy with the Stuart cause, and by 6th December the Highland chiefs had insisted on retreating

to Scotland. This movement was successfully carried out, the Highlanders showing the admirable military qualities which subsequently earned for them the high estimation as soldiers which they retain to this day. They regained their country, were joined by a few French and Irish soldiers in the French service, and on 17th January, 1746, defeated a considerable English force at Falkirk. This was Prince Charles' last success, and on 16th April the cause of the Stuarts was finally disposed of at Culloden.

On the conclusion of the campaign Sir John Cope's conduct at Preston Pans was the subject of a public enquiry at the Horse Guards, assembled by his request. The enquiry was largely attended, and lasted five days. The finding of the Court was that Sir John Cope "did his duty as an officer both before, at, and after the action, and that his personal conduct was without reproach." He subsequently held a command in Ireland, and died in 1760. No monument marks his grave. His reputation has long suffered unjustly for his undeserved misfortunes at Preston Pans, the full and true story of which action remained almost unknown until the publication of a work styled "Sir John Cope and the Rebellion of 1745," by the late General Sir Robert Cadell, to which the present writer is much indebted.

A DISCUSSION ON

THE STANDARD OF NAVAL STRENGTH.

On Wednesday, 9th December, 1908.

The Right Hon. Earl Cawdor, in the Chair.

Previous discussions on this subject took place in the Royal United Service Institution on 27th June, 1904, and 6th December, 1906.

POINTS SUGGESTED FOR DISCUSSION.

Measuring Standards.

1. A simple standard required for National and Parliamentary use.
2. The old 2 to 1 Standard against the next strongest Power.
3. The two-Power Standard and the Prime Minister's declaration. Definition of Capital ships.

Rate of Building.

1. Breakdown of the two years' rule. Strikes.
2. Orders for the *Lord Nelson* placed in October, 1904. Admiralty state she will be completed 31st December, 1908. Material was first received for the *Defence*, 16th November, 1904; she is hoped to be completed 31st December, 1908.

Both these cases over 4 years.

3. Contracts for the *Invincible* and *Inflexible* were placed on 21st November, 1905; the former will be ready in February, 1909, and the latter at the end of the present year.
4. The 1909-10 Programme should safeguard the country until the new ships of the 1910-11 Programme are completed.
5. If ships are laid down at end of year, then 1910-11 Programme ships will, allowing $2\frac{1}{2}$ years to build, be completed in June, 1913.
6. Therefore, unless we lay down ships earlier we must consider position of rival Powers, say in April, 1913, when framing our new Programme.
7. This will force us to take into consideration not only Germany's 1909 Programme, but probably also her 1910 Programme.
8. It is necessary, therefore, to lay down our ships earlier in the year.

9. Advantages of regular programmes. Difficulties in supplying gun mountings, etc., for larger programmes, and consequent slow building.

DISTRIBUTION.

1. Necessary British dispersion as compared with :—
   a. American and Japanese concentration in the Pacific.
   b. French concentration in the Mediterranean.
   c. German concentration in the North Sea.

2. Strategical and tactical considerations affecting the argument, whether individual power of battle-ship can compensate for inferiority of numbers.

3. If obsolete vessels of probable enemy are maintained, can we neglect them in our considerations by ceasing to keep in repair our own old ships?

MARGIN OF SAFETY.

1. The margin for coaling and refitting.
2. Losses due to risks of navigation.
3. Losses due to torpedoes and mines.
4. Uncertainty a reason for raising the margin, *e.g.*, the submarine boat.
5. Difficulties with neutrals necessitates a margin for contingencies.
6. Provisions for the refitment of vessels after a battle, such as docks and reserve of guns, must be considered.

DEMANDS OF CONVOY.

1. Garrisons have been cut down everywhere over-seas.
2. Colonial dockyards have been dismantled. Admiralty say in case of war we could *at once* send out the necessary men and machinery.
3. The War Office scheme. "An expeditionary force immediately available for use over-seas in war." (Memo. 30th July, 1906.)

CRUISERS.

1. Requirements for scouts, look-outs, and supports for destroyers.
2. Commerce defence. Has the Russo-Japanese War shown that the coaling difficulty of commerce destroyers was exaggerated?
3. Evidence tendered by Admiralty to Lord Balfour's Food Supply Commission. Subsequent scrapping of numerous vessels and failure to build small cruisers from 1903 until current year.
4. Speed. Comparisons on basis of speed and on the assumption that Admirals will not detach valuable armoured cruisers to protect commerce.

DESTROYERS.

1. Importance of type when the strain of North Sea work is considered.

2. Short Life. Comparisons on the basis of fitness for work.

3. Rate of building:—

a. *Ghurka*—Contract placed 30th August, 1905, ready December, 1908.

b. *Afridi*—Contract placed 21st September, 1905, ready March, 1909.

These are our worst cases.

The CHAIRMAN:—In taking the chair at this important meeting (and may I tender to your Council my thanks for allowing me the honour of taking the Chair), I wish to say just a few words as an opening to the discussion, which should be of considerable interest. I think we shall all agree that, within the last few weeks, the position of this country, in so far as the two-Power standard is concerned, has been very materially altered for the better. We know very well that for many years past there has been a considerable divergence of opinion, sometimes clearly expressed, sometimes merely a sort of veiled indication of that standard by those in high office, which made some of us who hold very closely to the two-Power standard as an absolute necessity very uncomfortable. I am glad to say that, within the last few weeks, any feeling of that kind, certainly so far as I am concerned, has disappeared. We all welcome, I am quite sure, the clear, unfaltering, unqualified declaration of the Prime Minister, of his adherence to the two-Power standard, as most of us had always wished to interpret it. That, I think, gets rid of what is, to my mind, a question of very great importance; it gets rid of all sign and all excuse for any tinge of party feeling, with respect to this all-important question. We may now feel that, on both sides of politics, the leading politicians have absolutely accepted the same standard. I do not propose to in any way go behind the statement made by the Prime Minister; I accept it as made by an honourable statesman with a full sense of his responsibility, and as meaning that what he said should be carried out, not only in the letter, but absolutely in the spirit. I think that we have gained this. Having eliminated this question absolutely from all questions of sides, we have now set up a clear and definite standard; a standard which anyone in its elementary parts can clearly understand—a simple standard, a general standard, applicable to every country, and a standard which is to be maintained independent of all questions of Treaties or of understandings with any other country in the world. We have accepted this standard as a battle-ship standard, and as a battle-ship standard I venture to say it is of great value, because that standard can be understood by the man in the street. It is a standard, of course, upon which the Admiralty must work. But there is, surely, a good deal more behind the battle-ship standard. It would be the utmost folly to suppose—and, of course, none of you skilled gentlemen here to-day would suppose for a moment—that the battle-ship standard is of any value whatever as an efficient fighting fleet by itself. We have to look a great deal further than that; we have to look to all those accessories which are quite as important as the battle-ship itself, and without which the battle-ship is useless, if the battle-ship standard, and the general two-Power

standard, is to be an efficient standard for the defence and for the security of the Empire. Let us touch upon one or two of these. First of all, these accessories apply to every vessel of war over and above the battle-ship. I need not enumerate them here. Those accessories also apply to all the necessary stores for every class of ship; they apply to the reserve of guns; they apply, of course, to the *personnel* and to the manning of the fleet with the efficient sailors whom this country, thank God, has always been able to command; and last, but not least, those accessories include that all-important question of docks—to my mind, one of the most important things to which the public mind can well be turned. And in docks I include not alone docks for the purposes of the repairs of the fleet, but shelters which, I believe, naval men will agree are absolutely necessary for battle-ships when the sea may be swarming with the smaller fry of dangerous ships of war, which would make it impossible for them at the first moment to put to sea. Those are surely all matters absolutely and closely interwoven with the two-Power battle-ship standard, and it is to them, I think, that we must turn our mind. The battle-ship is a great looming thing which everybody can see, and everybody can understand, and it would be very easy to fill the public eye with battle-ships while you were skimping and cutting down that which is quite as important as the battle-ship itself, because it means the security of the battle-ship, and, therefore, the security of our two-Power standard. The subjects which I have just touched upon appear to me to be questions that can very well be dealt with with great advantage by criticism and by discussion. We need the light of the best intellects of the country turned upon this subject, and the more outside criticism we can get the better I think it will be for the country—given one or two things. That criticism and discussion must be fairly conducted; it should be free from every personal bias; it should be free from all personal animosity. Believe me, criticism loses its weight, and discussion becomes mischievous instead of advantageous, unless we can eliminate from them anything which savours in the slightest degree of unfairness or personal bias. I would venture to suggest that, in our discussions and in our criticisms, we should endeavour to assist, and never in any way to hamper, those upon whom rests the burden of the administration of naval affairs. We should give them the credit for having at heart, as much as we claim to have at heart, the best interests of the naval service. I am told that one of my special duties to-day is to inculcate in those who address the meeting brevity. I am told that I have some very formidable rules that I am expected by your Council to carry out. Perhaps the best course that a Chairman can take is to set the example himself of brevity, and, therefore, in inviting you to commence this discussion I will add no further words of my own; but I would ask you, at the request of the Council, to bear in mind that their wish is that the speeches should not exceed as a rule ten minutes, and that they should have reference to the subject to be discussed. I am not quite sure that my experience in that House of Parliament, to which I have the honour to belong, is a good example to us in this particular, for we have an unfortunate habit there of forming our own rule as we go along, and we certainly never for a moment consider it necessary to be bound in our discussions and in our speeches by the subject definitely before the House. For the purpose of this discussion I must try and copy another assembly in the rules that I ask you to adopt to-day. I thank you very kindly for the courtesy with which you have heard me, and I will now call upon the first speaker to address the meeting.

Admiral-of-the-Fleet Sir GERARD U. NOEL, K.C.B., K.C.M.G. :—I am probably the last from active service, and therefore may be considered to represent, as well as anyone, the great silent Navy. The discussion before us to-day is the "Standard of Naval Strength," and, as our Chairman has told you, that includes a very great deal. It includes not only the ships but the *personnel,* and it might also include the policy and administration of the Navy. I quite agree with Lord Cawdor, that it is the duty of every assembly, especially in this Institution, to support the Admiralty. I had the honour of serving at the Admiralty at a time when we were adding an average of five battle-ships and five thousand men to the Navy yearly. At that time sandwich men paraded the streets of London carrying placards connecting the Admiralty with ships they called death traps; that was a nice criticism when we knew what we were doing for the good of the Navy. That administration was under Lord Spencer, under a Liberal Government, and the first Naval Lord was Sir Frederick Richards. Sir Frederick submitted and carried the Spencer programme, which not only included ships, but, as I said, five thousand men a year added to the *personnel,* including, of course, officers; while I think there were twenty million pounds asked for and voted for harbours and works. Mr. Goschen, afterwards Lord Goschen, instituted another programme in Sir Frederick Richards' time. That Navy, in my opinion, we are now living on. Lord Selborne's administration carried on the same good work, to the entire approbation of the whole Navy, until his father-in-law, the great Lord Salisbury—whom we all trusted, and whom we knew would keep the ship of state on the right course—died in August, 1903. Then came a change. That change, I can assure you, is a matter of very serious consideration to all naval men. We have been told by our Chairman that we are not to be personal, but without being so I think I may mention some of the effects of that change. The *Dreadnoughts* were commenced, causing a very great delay in all battle-ship building. And what is a *Dreadnought?* It is no better than any other battle-ship. Cruisers of a very large type were also commenced, but where are the smaller cruisers? Torpedo-boat destroyers of enormous speed and costing an enormous sum of money (nearly one-eighth of a million each) were laid down, but where is their armament? Their armament is no better than that of the smaller vessels. I do not blame the shipbuilders or the Chief Constructor, who have to obey their orders. Then there is another vessel building, the *Swift,* which cost nearly one-fourth of a million pounds. What naval officer can find a sufficient use for her to justify this expenditure? All these are questions of enormous expense, and the results have been that the Navy Estimates are very high without an adequate return. The present administration has done a great deal for the Navy. We find that allowances, pay, and leave are very much increased; but does it mean an increase to the efficiency of the Navy when we cannot get docks for the *Dreadnoughts?* I am all in favour of naval officers and men being better paid, and being given a fair amount of leave; but now we pay our men to go on leave, with the result that instead of men looking upon their ships as their homes, as they ought to do, they look rather to their homes on shore. Another very serious matter with regard to the safety of this country is the very large reduction that has taken place in our coast defences, without any adequate defence being put in its place. All mines have been absolutely removed—I speak particularly of the East Coast, which was under my care quite recently. The Thames and Medway defences are very much reduced, and also at the more northern ports certain reductions have been made; in fact, all seems

to tend in the direction of making the North Sea more dangerous to us. What this country has to look out for in the future is the fact that our rival in commerce, our rival as a great nation, now has its parade ground in the North Sea. It is a very serious matter. Why we should reduce our defences in the North Sea, why we should reduce our Coastguard on the East Coast, I cannot understand; in fact, we seem to be making things easy for them. With reference to the long list of items on these printed notes, there are many which are very distressing to read: the length of time it takes to build our ships, the delays in completing them, the want of smaller cruisers, and the distribution of our Navy. As regards the distribution of the Navy, what was it before? Did we not practically command all the seas of the world? And were not our commercial and political interests guarded by squadrons of the necessary strength? No doubt the new aspect of affairs in Europe has necessitated bringing some of our battle-ships home; but why is the Pacific denuded? Why have many small cruisers been brought home from China? Why have the fleets at the Cape and the East Indies been reduced? And above all, why have the number of ships been reduced in the West Indies, including the dockyards in Jamaica, Bermuda and Halifax, the possession of which may become some day most important to us? It seems to me that our former distribution, with a little amendment, was infinitely better than at present.

Mr. ARTHUR LEE, M.P.:—I do not intend—indeed, it would be an impertinence on my part—to follow the gallant Admiral of the Fleet in his criticisms of the various types of ships, but perhaps I may be permitted, as a member of the Board of Admiralty which was responsible for the design, to express my surprise when he said that the *Dreadnought* was no better than any other type of battle-ship, and when he also said that the torpedo-boat destroyers which are now being built had no better armament than those built in his time. I have been informed—of course, I have no technical knowledge—that the armament of the destroyers is now considerably greater, and that the *Dreadnought* is, in most fighting respects, a more efficient type of battle-ship than her predecessors. However, that is a technical matter on which I am not qualified to speak. My only object in rising to-day is because I happen to have been the humble instrument which elicited from the Prime Minister the other day the declaration which has given so much satisfaction, not only to all of us here, but to the whole country. In view of that declaration I feel that it is my duty to defend that definition of the two-Power standard which he accepted and nailed to the mast, and to defend it particularly against certain lines of criticism which have been advanced within the last few days. In that connection I will begin by saying that I regret particularly the lamentable tactics which have been indulged in by certain individuals and newspapers in suggesting that the Prime Minister did not mean what he said with such admirable lucidity and firmness in the House of Commons, and that he was deliberately deceiving the House and the country by keeping up his sleeve some reservation with regard to this or that foreign Power. I believe that those suggestions are as unworthy as they are insulting to the Prime Minister, and I do not believe that they have one particle of justification. However that may be, we now have the two-Power standard firmly rooted as the prime article of our naval creed, and accepted by both political parties. It is not an ideal standard, perhaps, but it is one which is hallowed by precedent, and which is well understood, not only by the people of this country, but by foreign countries,

who do not resent it, mainly because it applies to all alike, and because it makes no discrimination whatever. There are some critics who complain of the standard because it only applies, in terms, to "capital" ships. And may I say that by the term capital ship, which seems to have occasioned some controversy, I, at any rate, understand the old eighteenth century definition, which is, an armoured "vessel of the first class, fit to lie in the line of battle"—in short, a battle-ship, as stated by our noble Chairman. And, of course, as he has so fully stated, we understand it also includes all the other component parts of a Navy, without which a fleet cannot be a fighting machine at all. Then there are other critics who express a mild satisfaction with the two-Power standard, but who speak of it somewhat slightingly because they say it only refers to material things like ships, whilst they attach far greater importance to less tangible assets, such as education, training, and above all, superior tactical ability. They suggest that we have been hypnotised by the merely material aspects of a Navy. But when they go so far as to suggest that it is possible for us to compensate for an inferiority in these material things by superior mental and professional attainments, then I think they venture upon exceedingly dangerous ground, because their argument is based upon that arrogant assumption of British superiority with which we are so often credited, and which I think we do so little to deserve. I am not one of those who are willing to admit that the foreigner possesses all the virtues and capabilities which are deficient in our own people, and I cannot believe for a moment that our admirals, officers, and men are lacking in the essential qualities of professional ability, cool-headedness, and courage as compared with their opposite numbers in other fleets; but it would be equally dangerous, in my view, to adopt the suggestion that we can, by some administrative changes or reforms, make our officers and men the certain superiors of their rivals in other fleets, and it is for this reason that I believe it is important, and, indeed, vitally essential, that we should stick to this standard of material strength which is expressed in the two-Power standard. Otherwise, where should we find ourselves? Imagine a First Lord of the Admiralty getting up and trying to explain to the House of Commons or the country that, whilst we were not keeping up the two-Power standard in material things, at the same time we were making arrangements by which the mental attainments and the tactical ability of our officers should be so superior to that of their possible enemies that we should be more than compensating for a slackening off of our shipbuilding programme. Why, the country would have a fit, and I trust it would at once insist upon a change of Government, if, indeed, it did not take more violent measures. Then there are those lugubrious critics who believe that it is very little use having a two-Power standard, or, indeed, any Navy at all, so long as we have in Whitehall a Board of Admiralty whose incompetence is as glaring as its motives are sinister! It is not my business to defend the Board of Admiralty. It is rather my duty—a duty which I endeavour to perform—to keep a very watchful and vigilant eye upon all its proceedings, and I will therefore only venture to suggest to those critics that possibly they are a little over-pessimistic with regard to the present administration. Then there is the most astonishing of all the schools of critics of this two-Power standard, those amiable and theoretical gentlemen who, greatly daring, venture to assert, in the daily Press and elsewhere, that the Board of Admiralty has no plans whatever for the use of the Fleet in case of war, and therefore our two-Power standard Navy would be helpless at the outbreak of hostilities. What ground there is for this astonishing charge I know not. I presume

the critics do not mean to assert, because the war plans of the Admiralty are not known to them, or were perhaps made without their advice, that they do not therefore exist; and certainly to suggest that an omission so criminally negligent and so at variance with the practice that prevailed when my noble friend, Lord Cawdor, and myself were at the Board of Admiralty, now exists, is, indeed, to make the gravest charge that it is possible to make against any administration. Ever since the charge appeared I have been waiting breathlessly for the proofs. When those proofs are forthcoming I for one shall be amongst the foremost in a popular movement for hanging the Lords of the Admiralty, seriatim, on the lamp-posts in Whitehall. But in the meantime I rather hesitate to commence that operation in the absence of further evidence. I invite the critics who have expressed these opinions to substantiate them here this afternoon because they bear very closely upon the efficacy of the two-Power standard. In conclusion, I earnestly hope that the country not only accepts but also understands the effects, financial and otherwise, of the standard which has now been officially adopted. There are some who say that we cannot afford to keep up a two-Power standard on these lines. We did afford it one hundred years ago, when we were far weaker, numerically and financially, than we are at the present day. At any rate, we have got to maintain it, whatever it may cost. We may have to give up some other extravagances; we may even have to give up Free Trade. I am not going to discuss that point; but in the meantime I feel sure that we, and the vast majority in this country, do accept in the fullest sense the Prime Minister's declaration with regard to the two-Power standard. We are grateful to him for it, but we also mean to insist that it is given ample and immediate effect to. The Government has, in short, given to the country an I.O.U. payable in three months, and I believe the country means to see that that I.O.U. is not only honoured but honoured in full.

Admiral Sir NATHANIEL BOWDEN-SMITH, K.C.B.:—It would not be possible in the short time allowed to each speaker to discuss all the subjects referred to in the paper put into our hands, so I will confine my remarks to only two or three. As regards the two-Power standard, it is a great satisfaction to most of us to know that both the great parties of the State, backed up by a large majority of the electorate, are determined to keep up this standard in its integrity. To determine, however, what our building programme should be in order to maintain that position is not quite so easy as it may appear at first sight in consequence of the different fighting values of the various types of ships, and it is this difficulty which causes such varied opinions as to what our programme should be. The Germans have recently reduced the estimated life of their ships from 25 to 20 years, and if we take the lowest of those figures it will enable us to give full value for several years to many of our pre-*Dreadnought* vesssls, such as the eight *King Edwards,* and other fine ships built by Sir William White. If my memory serves me right, however, we were told when the *Dreadnought* was launched with a great flourish of trumpets that she so far exceeded all the ships that had gone before her, both in offensive and defensive power, that the nation which possessed the greatest number of such ships would rule the sea. Now we have been told by Sir Gerard Noel (whose excellent services we all recognise) that she is no better than her predecessors.

Sir GERARD NOEL:—May I say that I meant cost for cost?

Admiral Sir NATHANIEL BOWDEN-SMITH:—Well, anyhow, I believe that the two-Power standard is well maintained at present, and will be next

year, and therefore this is no time for crying "Wolf"; but if it is the case that vessels of the *Dreadnought* and *Indomitable* class are so superior to those which have gone before them, then, as the Germans appear to be building ten of such ships to our eight, I should like to be on the safe side and lay down at once ship for ship as many as are under construction by Germany, so that we may retain that superiority which we now undoubtedly possess. As regards the distribution of the fleet, we have now to face quite a new position, which has made it necessary to completely alter the previous distribution of our ships. We have now the greatest military Power in the world possessing already a great fleet of transports, displaying a feverish haste to build up also a great Navy, and all this huge power of offence will be concentrated in one spot—the North Sea! We have been compelled, therefore, to recall many of our ships from foreign stations and to concentrate in home waters—a policy which has been taken exception to by Sir Gerard Noel, but a policy which is sound, in my opinion, under the circumstances.

Sir GERARD NOEL:—How about the Pacific?

Admiral Sir NATHANIEL BOWDEN-SMITH:—Well, the Pacific is a long way off; it is something much nearer home that keeps me awake at night, and although I regret the necessity for this concentration of our ships in home waters, it is necessary in consequence of the present weak state of our land forces, for the heart of the Empire must be protected. In days gone by our Channel Fleet often made extended cruises, sometimes up the Mediterranean, and I can remember when serving in this fleet spending three consecutive winters at Lisbon, carrying out our cruising and target practice from the Tagus. About a year ago, when the Home and Channel Fleets, with cruisers and torpedo craft, were assembled at Lagos for combined manœuvres, questions were asked in the House of Commons, and protests were raised against our ships being absent from our own shores, and this nervousness must necessarily exist until we have a *bonâ-fide* Territorial Army. We shall always now have to keep a large number of ships in home waters, but they ought not to be kept so completely tied to our shores as they are at present, for there is a British Empire outside the British Isles which has to be considered, and that Empire must suffer if the flag is not seen occasionally flying from fighting ships. I mention "fighting ships" because up to recent years our flag has been shown on vessels of no fighting value, and the day for that has gone by. However, I should be satisfied, as regards the Navy, with the two-Power standard, if faithfully maintained, provided we had a real Territorial Army (by compulsory service, if necessary) of 500,000 men, ready to be mobilised at short notice, and thus setting some of our ships more free than they are at present. Under the section "Convoys, etc.," on the synopsis of points to be considered, the question is raised as to the policy of abandoning certain naval yards abroad! With regard to that policy, I consider the Admiralty acted wisely in giving them up, as many of them were not necessary and were not suited to modern requirements, having no dock or repairing plant. Allusion has also been made to the recent administration of the Navy by one of the speakers. I should like to say, before concluding my remarks, that, in my opinion, the administration of the Navy has been conducted during the past three or four years with great courage and ability.

Lieutenant CARLYON BELLAIRS, R.N., M.P.:—As the only naval officer in the House of Commons, I had better confine myself to the political

aspects, as we see them in Parliament, connected with the standard of naval strength. We have heard several references to the definition, which the Prime Minister has endorsed, of a two-Power standard, and the exact revelation of that definition was due to speeches that you made, my lord, in the country and in the House of Lords. I belong to the Navy League, and the Navy League put that forward as a main plank of their platform. We have 120 Members of Parliament in the Navy League, and we assisted in forming a Navy Committee in the House of Commons. The Navy Committee in the House of Commons, which has a very large number of members also, put that definition of the two-Power standard forward as the main plank of their platform, and I think Mr. Arthur Lee will allow that it was suggested first at the Navy Committee that the question should be asked in the House of Commons.

Mr. LEE :—Hear, hear.

Lieutenant CARLYON BELLAIRS :—Mr. Lee has referred to the fact that doubts have been put forward by certain members of the party to which I belong as to the plain meaning of the words of the Prime Minister; but there can be no question about the plain meaning of those words. It was a very emphatic statement. I shall not quote the first statement he made, in which he said that he meant the next two strongest Powers, and endorsed the definition; but Mr. Lee followed it up on the 23rd November, 1908, by asking this question : "May I further ask, in order to dispel certain doubts which have been expressed, but not on this side of the House, whether by the words 'the two next strongest Powers,' the right hon. gentleman means the two next strongest Powers whatever they may be and wherever they may be situated'?" and Mr. Asquith replied : "Under the existing conditions and under all foreseeable circumstances I think that is so." I do not think anything more emphatic could be said short of taking the oath on Holy Writ, as in the Courts of Law, or when we swear loyalty in Parliament. I know that the Reduction of Armaments Committee of the House of Commons were very much excited about this declaration, and had countless meetings upstairs in the committee rooms to try and settle on methods by which they could get the Government to go behind their word. I believe that Sir John Brunner and Mr. Murray Macdonald saw the Prime Minister in his private room. As a result of that interview there appeared a most extraordinary paragraph in the *Daily Telegraph* of 3rd December, saying that "representatives of the Committee (the Reduction of Armaments Committee) are reported to have sounded the Prime Minister on the subject, and Mr. Asquith gave the most explicit assurances that he had never meant to include the United States, and if publicly challenged to say so he would unhesitatingly say so." I think that is a very bad insinuation to bring against the Prime Minister. I happen to know that the correspondent of the *Daily Telegraph* is a responsible man who would not have put such a statement in unless he had been led to believe, either directly or indirectly, by one of the two interviewers of the Prime Minister that that was the case. I called the attention of both Sir John Brunner and Mr. Murray Macdonald to the paragraph, and I pointed out to them that it was their plain duty to exculpate the Prime Minister from such an insinuation. Liberal Members came to me and suggested that we should see the Prime Minister; but I said : "It is not we who should go and see the Prime Minister and insinuate that what he had plainly and unmistakably said in the House of Commons he did not mean. The duty lies entirely with Sir John Brunner and Mr. Murray Macdonald to exculpate the Prime Minister."

The Reduction of Armaments Committee in the House of Commons, including as it does a number of Members of my party, have on two or three occasions resorted to tactics of which I can hardly express my approval. Last year they got up a memorial to the Prime Minister to reduce our armaments, including the Navy. They got signatures before the increase of the German Navy was announced, and they presented the memorial after the increase had been announced. It is obvious that the situation under which those signatures had been obtained was considerably changed if in the meantime one of our principal naval rivals makes an extensive addition to her proposed naval armaments. But this year very similar tactics seem to have been resorted to. At the end of the Summer Session—about July—signatures were collected by the Reduction of Armaments Committee for a memorial again urging the reduction of armaments. This memorial was given to the papers on 6th August, and stated to have been signed by 144 Liberal Members of Parliament. The signatures were not given to the public, as they usually are, so that none of us can check them in any way; but to my surprise a few days ago there appeared the same memorial, which it was stated had been signed by 150 Liberal Members of Parliament, and the statement was made that it had just been presented to the Prime Minister. Obviously a memorial presented at the end of November, the signatures of which were collected long before the Prime Minister's declaration, is perfectly worthless. I do happen to know that amongst the Members who signed that memorial, at any rate one of them came up to me and said that he was convinced from his visit to Berlin that, although he had always urged the reduction of the Navy, he was now convinced he was mistaken. He was convinced that the German naval armaments were aimed at England in particular, and that we should do everything to try and meet those armaments on a large scale. The concluding paragraph of the memorial which was presented was: "We would urge that the present moment is eminently propitious for a renewal of them," the word "them" referring to their efforts to bring about a reduction of armaments. Can anyone imagine that singatures which were obtained in July, long before this Eastern crisis broke out, to a memorial saying that the present moment is eminently propitious for the renewal of negotiations for the reduction of armaments would have been given now with this near Eastern crisis going on? Then there is another point to which I should like to refer. In the memorandum which you, my lord, issued just before the present Government came in, it was laid down that to maintain our standard of naval strength we require four battle-ships a year, and it was also laid down that they were to be built in two years. We have failed to keep up the two-year period. We are constantly told in this country of what we are going to do, and we very constantly fail to achieve it. I think that is a mistake that the Admiralty have made all along. It is a mistake for the Admiralty to lead people to believe that they can perform more than they promise. At the same time, the efforts of Germany have been as constantly depreciated, and the German Admiralty, I notice, constantly depreciate their own efforts; there is no advertisement about it. I would point out to you this fact: that we have ships still building in this country, belonging to the 1904 and 1905 programmes, and there is not a single ship belonging to the German programme of 1904 and 1905 which is not completed, and I believe they are all in commission. That, I think, is conclusive from that point of view. But as regards the statement that we were to lay down four battle-ships a year as a minimum, in the first year of the present Government they laid down three, a reduction of one; in the

second year there was a reduction of one; and in the third year (this year), a reduction of two, that is a reduction of four in all, in spite of the loss of the *Montagu;* and in between there were large increases in the German programme. Then we were assured in April, 1907, that the Germans could only have nine *Dreadnoughts* and *Invincibles* ready by the end of 1911. About the spring of this year the Admiralty representatives began to hedge; they said: "Germany will have nine *Dreadnoughts* and *Invincibles* ready by the end of 1911, and they may have thirteen." In the House of Lords, in response to the debate which Lord Cawdor initiated, the Admiralty representative stated that Germany would have thirteen *Dreadnoughts* and *Invincibles* ready by the end of 1911—that is to say, an increase of 44 per cent. compared with what we were told in 1907. Comparing the British and German programmes, we find that during the three years the Government have been in office they have provided for two armoured ships less than Germany—about 27,000 tons in armoured tonnage less than Germany during those three years. They provided for six small cruisers and lost the *Gladiator,* as compared with six for Germany; and 24 destroyers, as compared with 36 for Germany. Therefore, we have been considerably less in our provision of naval armaments in the three years the Government have been in office than one single Power itself. Therefore, it is that we say the Government is on its trial in this matter. We expect Mr. Asquith's Government to act fully up to that declaration which he has made, and to provide a large programme in battle-ships, and the adjuncts of battle-ships which Lord Cawdor drew attention to, small cruisers, destroyers, and the necessary dock provision, cost what it may. In that respect I associate myself fully with the words which fell from Mr. Arthur Lee, and, believing with Adam Smith that defence is greater than opulence, I say that the maintenance of our proper standard of naval strength comes before Free Trade itself.

The Right Hon. Sir JOHN COLOMB, K.C.M.G.:—I venture to contend that paper figures and mere abstract comparisons of number of battle-ships are not, never were, and never can be regarded as a scientific or thoroughly reliable method of measuring relative naval power, nor can the addition of an arbitrary percentage of mere numerical strength make it so. I, of course, admit that the so-called two-Power standard is most valuable as a "rule of thumb" guide to popular recognition of some principle tending to enforce continuity of naval policy and for regularising expenditure. Now, to illustrate my contention. Of course, we are agreed that battle fleets are the true units of International comparisons, but to rely upon mere numbers without reference to quality of capital ships would be absurd. What is a capital ship? I submit that the true value of a war-ship is not to be appraised as an abstract entity of its individual inherent power, but should be measured by its capacity to perform the particular functions imposed upon it by its relation to the complex work to be done by our Navy as one great instrument of war. A battle fleet, as a complete unit of power, exists to fulfil a strategical purpose. It can only do so in one or other of two ways: (*a*) by the influence of its moral effect to contain in its own ports the enemy's battle fleet; or, (*b*) failing this, to meet and destroy it. The method by which the ulterior object is attained depends upon the margin of superiority. If that margin be insufficient to produce the moral effect necessary, then the main issue sooner or later passes into the tactical stage of actual battle. The efficacy of the battle fleet to accomplish its purpose depends rather upon the collective power of the mass than upon any exceptional power possessed by some of its ships

very far in advance of those possessed by the rest. Homogeneity seems to me to be the cardinal principle determining the composition of a battle fleet. I hold, therefore, that a capital ship is a ship designed and constructed to fulfil line-of-battle requirements, and none other, and her true value is her contribution to the homogeneity of the battle fleet taken in relation to her cost. In the nature of things every new capital ship will be an improvement upon her predecessors. This is the inevitable result of advancing science, tempered with enlarged experience, and necessarily involving increased cost. Time, wear and tear of service operate to reduce the contribution to homogeneity of older ships; so also do improvements in the newer ones, which have to work with the older. So there is, and must ever be, a gradual process of deterioration of homogeneity at work in the battle fleet. The effect of time we cannot alter, but it seems to me undesirable, if not unwise, to incur enormous increases in expenditure in order to thrust into the composition of the battle fleet a vessel so far in advance of the rest as to violently disturb that homogeneity which is the essence of line-of-battle power. It is really a question of cost in relation to what you get for it in the form of enhancement of the power of the battle fleet as a concrete whole. For these and other reasons I fail to appreciate the policy illustrated by the *Dreadnought*. I regard her as an exhibition of the triumph of ship construction rather than an example of reasoned naval thought. With regard to the terms of reference to the Committee as to her design, we do not know what they were. What we do know is she represents a sudden leap forward into a quagmire of expenditure from the historic and sound ground of cautious but continuous advance. As I read naval history it is not a record of spasmodic leaps but of gradual development, guided and controlled by reference to general principles proved by all experience to be fixed and constant. Now, improvements in the appliances and machines of war do not alter principles of strategy which determine the work to be done by ships. It is the nature of the work to be done which necessitates distinction in types and their classifications, and the number of each required to accomplish a given purpose. While a battle fleet is a complete unit in itself, its efficiency for the purpose it has to fulfil depends upon other things besides "capital ships." They are many and various, but I have only time to refer to one: the necessity of providing the battle fleet with eyes and ears; in other words, the means for the performance of those subsidiary services upon which the effective action of the battle fleet depends. I maintain that without taking such means into consideration there can be no true comparison between battle fleets to operate in a given area. Political geography is the great factor determining the nature and number of the different classes of ships for the subsidiary services of the battle fleet, as well as of the strength of the battle fleet itself. To-day our attention is fixed upon the North Sea; to-morrow it may be the Mediterranean; the day after it may be the Pacific. It would be a waste of time to illustrate the differences in the amount, the nature of the distribution of the naval force required by the contemplation of war in either of those areas. It is sufficient to point to the fact that geographical situation of areas of operations vitiates comparison based upon mere numbers. The distance from the primary base proportionally augments the force required. Naval power indigenous to the area of active operations has advantages which can only find compensation by the opposing force far removed from its primary base being able to provide relatively larger force to equalise the handicaps of distance. But the situation and the extent of area of active operations not only affects the question of numbers but of the nature or

types of subsidiary ships required. There is not time to illustrate this. One word in conclusion upon cruisers. While the capital ship's individual function is tactical, that of the cruiser is strategical. Speed in a cruiser or squadron of cruisers is a quality necessary to strategical efficiency. Its attainment involves sacrifices of elements of tactical value; so, in my view, speed is of far less relative importance in the battle-ship than in the cruiser. It seems to me that attempts to compromise between a battle-ship, the individual function of which is tactical, and a cruiser, the individual function of which is strategical, is a mistake and an expensive one. I therefore doubt the wisdom of the policy represented by *Inflexibles*. The danger of the present naval policy seems to me to lie in some unnecessary expenditure resulting from confusion between the strategical and the tactical problems presented by modern conditions in relation to ship construction. It is to me the negation of the teachings of naval history.

The Right Hon. Lord BRASSEY, G.C.B. :—We have already had a considerable discussion, and having arrived at this stage, it is certainly not necessary for those who are fully agreed with you, Sir, in the observations which you made with regard to the two-Power standard, and with regard to the necessity for increased expenditure on shipbuilding, to labour those questions further. I say for myself that I am entirely agreed with what fell from Lord Cawdor. When we turn from the general position to the question of the ships to be laid down or to be included in any programme to be proposed to Parliament, there seems less reason to hope for complete unanimity. It is obvious that the responsibility for these highly technical matters rests entirely with the naval and professional advisers at the Admiralty. And yet I venture to say that those who are looking at this matter from independent standpoints may venture sometimes to offer a suggestion. Take for instance the *Dreadnought*. The *Dreadnought* stands approved by the fact that all the maritime Powers have adopted that type for the line-of-battle ship. I know I am speaking the voice of many who are now in active command in the Navy when I say that ships of the *Lord Nelson* type also possess great merits. As compared with the *Dreadnought*, they are superior in protection, and they are superior in rapidity of fire. The practice has long been followed by the Admiralty, and undoubtedly with great advantage, having regard to tactical considerations, of laying down ships in groups. While I am glad to know that we are continuing to lay down *Dreadnoughts*, and to do all that science can achieve to improve that type, I venture also to say that I am expressing a great body of naval opinion when I suggest that four more *Lord Nelsons* would be a valuable reinforcement for the Navy. So far with regard to the line-of-battle ship. But as an old coaster for many years, not long ago having crossed the southern part of the North Sea several times in one week, and by night, I have something to say about the narrow and shallow seas. I submit that those who have to prepare and to deal with the construction of the Navy are called upon to consider the peculiar conditions which obtain in the narrow seas. They certainly differ from those of the broad, blue waters. There are the difficulties, first of all, of navigation. The southern part of the North Sea is difficult of navigation with all the assistance that is provided by light-ships, buoys, and beacons; but when all those guides to the navigator are removed, the difficulties are enhanced; and then obviously there is the enhanced danger of instant destruction by submarine mines, and the probable attack of the destroyer. Those are the conditions which do not obtain in mid-Atlantic. The naval and professional skill which

have produced the *Dreadnought* for the open waters should now be directed to the creation of a type specially designed for warfare within the narrow seas. I say let us continue to build *Dreadnoughts*, let us complete our group of *Lord Nelsons*, but let us not neglect the necessities of naval warfare within the narrow seas. Let us create an effective and powerful type for operation in those waters. I suggest for consideration that it should be an armoured destroyer, the most strong assailant to the big ship in narrow seas, and especially at night time and in circumstances of fog and thick weather. And then, in addition to these inshore squadrons, I know I am expressing naval opinion largely when I say—and I think the same remark fell from Lord Cawdor—it is very urgent to reinforce the fleet in swift sea-going cruisers of moderate dimensions, not only for service as scouts but as a means of keeping off the attack of the destroyer on a big ship in circumstances in which heavy armament is not available for repelling that form of attack. I have only one more thing to say, and it is this: In all our preparations for maintaining the efficiency of the Navy, the training of the service is of paramount importance. Looking at what has been the practice of former years, I regret that it is held necessary throughout the year to keep so large a proportion of our ships in our home ports. Take the Channel Fleet. If the training of that fleet can be more effectively carried on at certain seasons of the year by going a short distance south, we will say Arosa Bay, and there, with the Atlantic Fleet, carrying out the tactical exercises which are really necessary for the instruction of the fleet in warfare on a great scale, it is an unnecessary measure of prudence that ships should not be taken outside the English Channel. It is necessary to have not only a strong Channel Fleet, but a strong Home Fleet, thus securing that home waters are never unprotected.

Captain J. W. Osborne, R.N.:—I wish, if you will allow me for a few minutes, to change the direction of this discussion. I wish to bring into it the question of our food supplies in time of war, which I hope is relevant in a discussion on the strength of the Navy. I hope also that in doing so I shall not be called melodramatic. You read in the papers and hear in discussions which are held a great deal said about the strength of the fleet with regard to invasion, but you very seldom hear anything with regard to the strength of the fleet in relation to our food supply in time of war, and I think that the latter is of the two infinitely more important. I, for myself, do not believe for one second that there is any chance of the invasion of these shores unless the command of the sea is partially lost. If the command of the sea is partially lost, our food supplies will be stopped, and that means—it only needs two or three words to say it—the end of the Empire. I do not think it is claptrap to say that our position is unique in history. Forty millions of people are gathered together in these islands; four-fifths of them are fed from foreign countries, and three-quarters of the raw material that we use also comes from foreign countries. Further, I do not think it is one bit of exaggeration to say that of those forty millions of people at least ten millions are on the border line of starvation. What must be the state of such a country in time of war with no organised food supply is absolutely clear. Sir Robert Giffen, that very eminent writer on "Economics" sums up the situation in a sentence: "My vocabulary is not equal to expressing the strong opinion which I have of the overwhelming mischief and ruin which the first few weeks of a great naval war, whether successful or unsuccessful, would bring." Talking of the two-Power standard, we have at any rate come to consider it as a standard to equal the fleets of Germany and

the United States, the next two strongest Powers, so we may also fairly consider something about what would happen in a war against those two Powers. Let us just think of it for a single moment. Given we have the two-Power standard, plus 10 per cent., the United States would still dominate and practically stop the greater part of our food supply. For instance, she could, I think, stop the supply from Canada, and she would, of course, stop the supply from America. She would probably stop the supply from Argentina, and I do not believe that any two-Power standard, plus 10 per cent., would prevent the United States from stopping it. Then think of the condition of things that would obtain at the same time in the North Sea. You could not expect for one moment to bottle the German fleet up in the harbours of Friesland. The German fleet would come into the North Sea in great numbers. The North Sea would be full of fight, and what would be the condition of that sea under those circumstances? Why, there could be no commerce at all upon it. Think, then, of 30,000 fishermen standing idle, then look at Aberdeen, Leith, Hull, and the whole of the big towns down the East Coast all idle from want of commerce, until you arrive at the port of London. Think of the port of London idle, and then you have a condition of things which is absolutely appalling. To provide against such a state of things as that you must have one or two alternatives: you must either have a fleet of such power as to render war impossible, or else you must have some system of national granaries to provide food for the people, so that on the outbreak of war they would not be "panicked," and so that you could say to them: "We can feed you." I have introduced this line to the discussion because I do not see much of it in the Press, and I do think it is very serious. I am sure there are thousands of people who think with me, and I think the subject deserves the serious consideration of Parliament. I hope that if Members of the House of Lords and the House of Commons who are here this afternoon think with me in this matter they will endeavour to make the question of our food supplies a more prominent one than it has been.

Mr. ALLAN H. BURGOYNE:—It is with some diffidence that I enter into this debate, in which so many eminent speakers have spoken before me. I would not offer an opinion upon such an exceedingly important subject but for one fact: that there was one point taken up by Admiral Sir Bowden-Smith in regard to *Dreadnoughts*, and it is on the question of the *Dreadnoughts* that I wish to devote the time that is allowed to me. I read the papers very closely, and for twelve years I have made perhaps as close a study of the Navies of the world as any man going. I mark every ship as she is laid down to the time of her launch and to the time of her commissioning, and I propose to-day to give you absolute facts as to the exact position in regard to the *Dreadnoughts* of the world. It cannot take me very long, because there are not many of them when we have finished with the British. In the first place, I deplore very much taking the last three years for the purposes of comparing the programme of Germany with what has been done in Great Britain, for this reason: 1906 was the first year in which Germany voted *Dreadnoughts*, and we began in 1904. We have already heard from two or three eminent speakers that the *Lord Nelson* class may be considered from many points of view as fully the equal of the *Dreadnoughts*. We started in 1904 with two ships (*Lord Nelsons*). The *Lord Nelson* goes into commission this month, and the *Agamemnon* went into commission on 25th of June of this year. That is two. In the next year, 1905, (we have not touched Germany yet), we laid down four—the *Dreadnought* and three *Indomitables*. The *Dreadnought* will

have completed two years' full commission on Friday next, 11th December. That is three ships in commission. The *Indomitable* was commissioned to take H.R.H. the Prince of Wales across the Atlantic on 25th June of this year—four *Dreadnoughts* in commission. The *Inflexible* will be commissioned this month, as a matter of fact on Monday next—five *Dreadnoughts* in commission. In January the *Bellerophon,* which has completed her trials, will be commissioned—six *Dreadnoughts* in commission. In February next the *Invincible* will be commissioned—the last of the *Indomitable* type. Therefore we get seven *Dreadnoughts* in commission by the end of the financial year, 1908-09, and when the *Temeraire* is ready she will be commissioned, probably, in June or July. What are we likely to get by the year following? We shall by 10th March have twelve ships of the *Dreadnought* type in commission—put it any way you please—absolutely and definitely. And we shall have two more that will be laid down, one at Portsmouth on 4th January, and a fourth *Indomitable,* which will be laid down in February at Devonport—fourteen ships. Now, how do other Powers stand? In commission to-day there are but two *Dreadnoughts* in the whole world, the *Satsuma* and the *Aki,* in Japan, our allies until 1915. Now take Germany. Germany voted two *Dreadnoughts* in 1906. As you all know quite as well as I do, if it can be done it is the custom in Germany to lay down the ships in July of the year in which they are voted. Two were voted in 1906. They immediately laid down the *Nassau* in July, 1906. In September, 1906, the end of the building slip fell out and the ship fell off the stocks. They started picking her to pieces again, and, collecting the material, managed to commence re-building again on 22nd July, 1907—a year late. She was launched on 25th March of this year. Now, unfortunately, on 30th November last, less than a fortnight ago, she sinks in her dock, and as she has strained her plates they have had to take out every one of the bulkheads. The time for her completion was July next year, the period of construction being thirty-six months in Germany—they do hope to reduce it to thirty-two—so that the *Nassau* was to have been completed by next July. The most recent date, which I received in a letter I had last week straight from the yard in which she was built, is that she cannot by any possibility be completed until 10th March, 1910—the first German *Dreadnought.* Now, I take the second German *Dreadnought,* the *Westphalen,* which was laid down in July, 1907—the 1906 programme—a year late. She was launched in June of this year, and she will not be complete until 10th March, 1910. They have done rather better with the 1907 ships. They laid them both down in July and August, but only one is launched. We take seven or eight months to launch a *Dreadnought,* and they take ten or twelve. The *Rheinland* has been launched; the fourth of that class will be launched on Saturday next, unless something happens. Now we come to the *Dreadnought* cruisers, of which the "E," the first of the class, was supposed to have been laid down in 1906. We find that the German "Swan" is a "goose." She was laid down, as a matter of fact, to face what was believed would be an improvement upon our *Minotaur* class—the latest type of that class of vessel, of 14,600 tons, steaming 23 knots, with a 6-inch end-to-end belt, and carrying as armament four 9.2-inch guns in pairs in barbettes, four on end, and on either side singly, and five 7.5-inch guns. It was imagined, in fact it was said, that the *Orion,* which was to have been the fourth of that class, would be an improvement, and nothing more. The Germans rising at this bait, laid down the *Blücher,* and she will not be completed until the end of next year, and we find her a vessel inefficient, with no greater armament than ten or twelve 8.2-inch

guns, and could easily be "mopped up," not only by the *Minotaur* class, but would fare very badly if she came across the *Warrior* class. She is no longer included by anyone who has any knowledge of what a ship should be. The second one voted last year should have been laid down in July, but she was laid down on 25th March this year—already nine months late. She has not yet been launched, and will not be until March next. So that at the present moment they have three *Dreadnoughts* afloat and three building. This year four more will be commenced, cruiser *G*—— and three more *Dreadnoughts*. They ought to have been laid down in July. One was given out to order to Blohm and Voss, and was laid down in September. I put it to you that as matters stand these are facts that cannot be controverted. We shall have on 10th March, 1910, twelve *Dreadnoughts* absolutely completed and in commission, and Germany will have two, or four with luck. But I want you to understand this: It was purely our good fortune, and their bad luck, that they have not more. I do not suggest that we should go on hoping that they will have bad luck, and for that reason not build. I do not want any gentleman to believe for a moment that I condemn the Germans. I know that the German fleet has the highest discipline of any fleet in the world; but it cannot be contended that when we, who have had the experience of fifty years behind us in our ironclad building, find so much difficulty in the construction of a new type such as the *Dreadnought* that we build one first to gain experience, that Germany could afford to start the construction of a squadron of them straight away without the chance of testing the first one in commission. Leaving Germany, because it cannot be said that we are in danger there at present, for we really are not, let us turn to America. America has laid down the *Michigan* and the *North Carolina*, two ships. Both have been launched, and they hope to have them ready in June or July next. They are vessels of 11,000 tons, 500 tons less that the *Lord Nelson*, equal speed and less armour. Their next two ships are the *North Dakota* and the *Florida*—that is four *Dreadnoughts* to America. Two more have been voted, the *Utah* and one other, so that she has six. What we have to bear in mind are the United States and Germany, and they will have, with next year's programme, thirteen and six—nineteen. With a 10 per cent. margin of superiority it is essential that we should lay down six *Dreadnoughts* next year—you cannot get away from that. I believe that when the time comes for all our nineteen or twenty ships to be completed it will be found that we shall have a greater superiority than we are prepared for; but that would not be a thing for any man to take into consideration. If they have the ill-fortune to be unfortunate, we must have the good fortune to be fortunate. Our ships may be delayed, that cannot be gainsaid. If I have not exceeded my time, and may take up just another two minutes, I should like to speak as to the question of the destroyers, which has been referred to by Admiral Sir Gerard Noel. I feel exceedingly diffident in doing so, not merely by reason of the fact that my age is not of that maturity which I could wish, but also because I am criticising an officer as distinguished as any that has ever graced the British Service. He mentioned the importance of destroyers. In his mind doubtless he had, as every man has, the destroyers of Germany. It has become a habit recently to take ten years as the life of a destroyer—a very handy figure. But what is the result? If we take ten years as the life of the British destroyer it means that by the 10th March, 1910, Germany and ourselves will be practically equal; but it also means that whereas Germany only wipes off eleven old boats, we must send ninety destroyers to the scrap-heap, most of which are in commission now. That is an attitude that I do not think can be commended

in any possible way, particularly when we realise that our destroyers, from the very first, all carried a 12-pounder forward; and of the twelve destroyers of this year's programme in Germany, not a single one of them carry a gun bigger than 4-inch. They have got a greater speed than the older vessels of ours, but they will have to use it in running away! As to the big ocean-going destroyers being built now, of them we have a large number. Twelve or sixteen have been laid down. Of those, the first lot carried three 12-pounders. Perhaps some criticism may be made with regard to that—that it is not very much for a vessel of 850 or 920 tons. The lighter vessels of that class carried two 4-inch guns, and I pity any particular German destroyer that happens to come across one of this lighter class, for she will undoubtedly be blown out of the water. The last sixteen are probably to be of 950 to 1,030 tons, considerably larger than our own torpedo-boats of the *Antelope* class, and indeed almost as large as those of the *Hazard* class of 1,070 tons. They will steam 27 knots, having 12,000-I.H.P., or thereabouts; but every turbine ship that has been built has been found to have a large amount of power in hand if necessary, by reason of the fact that the turbines are capable of being run beyond the power for which they are designed, if the steam supply is sufficient. They carry five 12-pounders. The German ships will carry two 25-pounders and one or two Maxims. I do not mind which one of those destroyers you have, but I feel convinced you can get much more effective work from a 12-pounder than from a 25-pounder placed in a destroyer in a beastly sea, particularly in the North Sea. With regard to cruisers, there is a great need for modern cruisers of the protected type. It is suggested that that is going to be made up next year, but we must not criticise that; we shall be going outside to refer to them. We have seventy cruisers at the present moment, and it cannot be said that cruisers of twelve or fifteen years of age should be put on the scrap-heap. The evolution of metallurgy is so great and improvements in various types of machinery are so immense, that if we apply the policy suggested we should have to put I do not know how many vessels upon the scrap-heap next week. Then I want to impress upon you the necessity of moderation in criticism. It is so utterly futile to cry "Wolf" when there are others who feel it their bounden duty to express in public that in their opinion great exaggeration is going on. I have given you details to-day with regard to the *Dreadnoughts*. We require some next year, but we do not require them until then. If we delay in having them until next year we gain by the fact that, however long they have been put off, we shall have advanced in engineering, the manufacturing of guns, and everything else that appertains to modern mechanics, to the advantage of the ships themselves.

Admiral the Hon. Sir EDMUND FREMANTLE, G.C.B., C.M.G. (Rear-Admiral of the United Kingdom).—At the beginning of this discussion his lordship told us that he hoped no politics would be introduced, and I am sure that we quite agree with him in the sense in which he meant it. But the fact of the matter is that we all have something to do with politics—I do not say party politics—and I trust at all events I shall not err in that way. But you will remember that all the speakers who spoke early in the discussion referred entirely to political matters. For instance, you will remember that the question was raised as to what the Prime Minister had said with regard to the two-Power standard which has been so much discussed in Parliament, and so on. Mr. Carlyon Bellairs, who is a very capable gentleman, as he has shown in the House of Commons and elsewhere, instead of going very closely into the question of what

is our present naval strength, spent most of his speech in telling us how many people there were in the House of Commons who had petitioned on one side and how many there were who had petitioned on the other side. I only mention that, because if one does touch upon the question of what has been done, or ought to be done, we are, I fear, rather trenching on the question of politics. It was a great pleasure to me to hear the last speech, which dwelt with unrivalled knowledge, I am bound to admit, on the question of how we exactly stand, and I am sure reassured us very much, as it will reassure everybody. We are all very glad to hear, as the French satirist expressed it, of some of the misfortunes of our best friends; at all events, it convinces us that when we see in the papers that there are delays, and that there have been delays in the completion of ships, or in any other matter, or that there have been misfortunes in the British Navy—as there will always be misfortunes—that we certainly have not had more than our share of them. I was going to say a good deal, if I spoke at all, as to our position in the present and in the future, but I will cut that as short as I can, bearing in mind that the time is very late. But I should like to say on that point that I looked up this morning an article which I daresay a great many of you have read in the *National Review* of last month, by Mr. H. W. Wilson. Mr. H. W. Wilson, to a certain extent, is a pessimist, but there is no doubt of the accuracy of his information generally. He points out, as is known to a great many of you, that there is not only a very great Navy League in Germany, but a very powerful Navy League. He points out that Admiral Von Koester, "until two years ago the chosen Admiralissimo of the whole Germany Navy, and Inspector of that Navy, is now the head of their Navy League, and that he is still the confidential adviser of the German Admiralty." After giving the plans of the German Navy League, he says: "It is well that we should understand what these plans really mean, for that they will be carried out if England remains inert and the British Cabinet makes no reply, no one who has studied the history of the Navy League propaganda in Germany will doubt. In 1904 and 1905 the Navy League called for more destroyers, and for monster battle-ships instead of small ones; in 1906 the Government obliged with the Navy Act of that year. In 1906 the Navy League proclaimed that the size of the German armoured cruisers must be yet further increased; in 1907 the Government complied. In 1907 the Navy League insisted that the building rate must be raised from three large armoured ships to four; in 1908 the Government obliged. Either, then, the Navy League is gifted with the power of managing the Government or the Government uses the Navy League as its pilot engine to clear the road. The number of German *Dreadnoughts* to be laid down in 1909-11 under the existing programme is twelve, or four per annum, and of the four for 1909, two have been already ordered. If six *Indomitables* are added to the twelve we have a total of 18, which gives a building rate of six *Dreadnoughts* per annum, or thrice the present British rate, and this again means an annual ship-building outlay of £12,000,000 (nearly twice the British outlay of the present year) and annual effective estimates of nearly £30,000,000, or more than the effective expenditure of England. To understand the immensity of these proposals we should recall the fact that the prodigious effort which the British Government and Admiralty are going to make in 1909 means at the most the laying down of six ships, and more probably only of five." He then shows that if we are to build two for one we must lay down thirty-six *Dreadnoughts* between 1909-11; and he continues: "Such is the situation towards which the British Navy is drifting as the

result of the apathy of the nation and the Press, the surrenders of the Sea Lords, and the deplorable finance of the Cabinet." Mr. Wilson shows that between 1906 and 1908 (three years), England has built seven battleships, one armoured cruiser, and 23 destroyers, whereas Germany has built seven battle-ships, three armoured cruisers, and 36 destroyers. If you want the antidote to that you should turn to Mr. Gerard Fienne's articles in the *Navy League Annual;* but I will not go deeply into that. At all events, he is quite satisfied with the present position. He says that in 1909 we shall have 9 battle-ships, counting the *Lord Nelsons* and counting the three *Indomitables,* nine armoured ships ready, and that no other country will be ready except Japan, which is our ally. In saying this I am only repeating exactly what was said so much better and with so much more detail by my friend Mr. Burgoyne. But Mr. Fiennes says that Germany will have twenty-five *Dreadnoughts* and *Invincibles* at sea in the spring of 1915, and if the Navy League's proposals are adopted, six more, or thirty-one in all. That is the state of the case with regard to the present and the future, as shortly put as possible. I do not agree that there is no occasion at all for alarm. Admiral Bowden-Smith said he did not think there was any occasion to cry "Wolf," but I think there is. We want to keep the Government up to that which they speak of. We know perfectly well, as has been stated by other speakers, that it is not only the programme of battle-ships that is necessary, but so many other things. I cannot help alluding to some of those other things. For instance, cruisers have been alluded to, and you know that cruisers have always been a pet hobby of mine. I have recently written an article, which I hope will appear soon, in which I have particularly urged the absolute necessity of cruisers for the protection of our commerce. I am afraid I am not entirely reassured by the report made a few years ago by the Commission on Food Supply, the question which was referred to by Captain Osborne. I should like to say that there is one remark in the notes which have been drawn up for our consideration to-day, which I particularly wish to emphasise, and that is the necessity for a programme. I have constantly urged the necessity for a programme. We have never done anything satisfactorily of recent years without a programme. There was Lord George Hamilton's programme, and there was the Spencer programme. No other country dreams of attempting to do anything without having a programme. It is liable to be altered, no doubt, but I ask you in private life whether you have no programme, and yet your life may be cut short at any moment. We trust that the life of this country will not be cut short in that summary way. However, it seems to me quite obvious that we ought to have a programme. I dwell on that matter because I am glad to see that we are coming round to it somehow. I know that in Lord Cawdor's memorandum there was a programme sketched out of four armoured ships, and how much better it would have been if we had stuck to that. I know very well it is not popular with First Lords of the Admiralty, as a rule, or politicians generally, and we know why that is. They like to see how the cat jumps; they like to go down to the House and make a statement which meets the views of the public generally at that moment; but if there is a programme beforehand half the wind is taken out of their sails, and therefore it is not so satisfactory. That has always been the argument of the politician. But for our purposes I assure you that it is of the very greatest importance we should have a programme, and if we could get the Government to lay down a programme, whether they add to it or substract from it afterwards, it would be an advantage. I need scarcely say that there are other reasons why a programme should be

adopted. For instance, preparations could be made beforehand, whether for armour-plates or anything else, by those who supply those articles, instead of their being in happy ignorance, as I believe they were this year, as to whether four battle-ships would be ordered or one. There is only one other subject to which I would like to allude. In talking about our naval strength, it is not only the battle-ships that have to be considered—a question that has been alluded to by other speakers. What I particularly wish to call attention to is the subject of the munitions of war. It is acknowledged by the First Lord that they have been reduced thirty-six per cent. in the last two years, and during the same period, particularly last year, we have been throwing cordite overboard by the ton. I must say that I do not see how economy can be made without a considerable depletion of the stores, and that is a question we cannot inquire into, because if a question is asked in the House on the subject we are informed it would be contrary to the interests of the public service if we told the secrets of the prison house. There is only one other thing on which I would like to say a final word, and that is the question of concentration. Undoubtedly concentration in the North Sea has become more or less necessary. We cannot shift the centre of gravity of naval power without making some change in the position of our fleets, and without making concentrations different from those that obtained before. But at the same time, there is such a thing as carrying a good idea too far, and I very much doubt whether we are maintaining our position as the principal naval Power in the world when we have only three cruisers, as we have at the present moment, at the Cape, and the Cape includes, as sailors know, all the east coast of Africa and the whole of the west coast of Africa. What happened the other day at Zanzibar, a British Protectorate, when there was fear of trouble? They looked about for an English ship and could not find one; but they found a German ship, and the Germans kindly offered further help if required because an English ship was not available. I appeal to you whether that is reasonable, when our sea power at this moment is quite double that of Germany. If Germany can afford to have cruisers in different parts of the world, is it right and wise, and in accordance with our principles and ideas as the principal naval Power, that we cannot have a cruiser to protect the interests of our merchants in these distant parts of the Empire.

Commander Lord ELLENBOROUGH, R.N. :—I am exceedingly glad that my former shipmate, Sir Gerard Noel, has given us the advantage of his views on this important question, and I also hope that before this meeting comes to an end some younger officers, whose faces still have the trace of salt water upon them, will give us the benefit of their views. When a naval man happens to have a seat in either House, it is impossible for him to fulfil a useful purpose as regards the Navy unless he is given information from active-service men. If he does not do so he gets out of touch with the Navy, and feels that it is better not to say anything. I am therefore always glad to get information from naval men as to the state of affairs in the Navy. On the question of the margin necessary for refitting, I would like to remark that last summer I moved for a return of the amount of money spent on the repairs of battle-ships and first-class cruisers launched since the 1st January, 1898, and of the number of days that they were in dockyard hands during the last two years. The return in question contained a note to the effect that the figures included every day during which work was being carried out on board by dockyard

labour; also that it was not possible to distinguish between the days such work would have prevented the ship from proceeding on service, and when it would not. On analysing Part II. of this Retufn I find that in 1905-6 twenty-six battle-ships were 2,197 days under repair. Adding one-sixth, that is, 366 days, for Sundays, and dividing by twenty-six, gives an average of about ninety-eight days in dockyard hands for each ship. In 1906-7 a similar calculation gives an average of 114 days under repair for twenty-eight battle-ships, an increase of sixteen days, probably due to the necessity of fitting cooling aparatus to magazines. Applying the same calculation to cruisers, I find that in 1905-6 thirty-one cruisers averaged 105 days under repair, and that in 1906-7 thirty-three cruisers averaged 135 days under repair, an increase of thirty days. I have no reason to believe that any other Navy does better than that; but the point that I want to make is to show that only three-fourths of the vessels under ten years of age that we possess are always available at any time, and that they have to spend three months of the year in the dockyard. Therefore to maintain an equality in the North Sea we require one and a quarter of the strength of the fleet that may be opposed to us, as we must always be prepared to defend our command of the sea on whatever day an enemy may choose to challenge it with all his ships. As regards what Mr. Asquith said, there was one phrase I did not like at all, and that was "capital ships." Capital ships without the requisite cruisers and scouts are comparatively defenceless at night. They may be the kings of the sea by day, but the demon torpedo has power at night, and they all require protection from destroyers, submarines, and mechanical mines. Very little has been said to-day about the question of docks. I look upon a two-Power standard of docks on the East Coast as an absolute necessity, and the only question that really arises is how and where they are to be built. Those are points on which I admit there may be a great deal of argument and difference of opinion; but I take it as an axiom that there is no question that docks on the East Coast, capable of receiving a damaged *Dreadnought*, should be built. The Government have objected to obtaining money by loan for naval purposes. There is a great deal to be said in favour of that if it is to be spent on ships, but there is very much less to be said in favour of it when you wish to spend money on docks. I became acquainted with Portsmouth Dockyard in 1854, and with the Plymouth Dockyards in 1855. A great deal of the masonry that existed then is in good repair. The docks and piers and cambers are still in existence and in constant use, so that the money spent on them more than fifty years ago continues to be of great value to the country. For that reason I think the Government would be perfectly justified in borrowing money, to be paid off in twenty years, for dock building, though it might not be justified in borrowing money for shipbuilding. Some of the docks at Chatham and Sheerness were in existence in the time of the Stuart dynasty, and the work done then in excavating is still of some value to us, although it is very slight. I will not detain you very much longer, except to say that I am very glad I came down here for the purpose of hearing the views of others, and that I have heard Mr. Allan Burgoyne's most interesting speech, and also to say that I hope if anybody rises after me it will be some naval officer who has only lately retired from the active list or an officer who still has salt on him.

Mr. L. GRAHAM H. HORTON-SMITH, F.S.A.Scot. (Joint Founder and Joint Hon. Secretary of the Imperial Maritime League):—It has been of great interest to me to be here this afternoon, and a pleasure to have

had the opportunity of listening to speeches from men, of whom I respect one and all, even if, and not the less, because, in the case of certain of them, I am unable to agree with the views which they have indicated or expressed in regard to the Navy. To speak within this Hall is, again, at any time a pleasure, because it is always possible here to meet upon one common ground of patriotism, without any interference (on the one hand or on the other), either of politics or of personal reflections of any nature or kind whatsoever. There have been many points referred to by previous speakers, with which I should have liked to deal; but, in view of the shortness of the time at my disposal, I think that it is probably better that I should speak that which I came to speak, rather than deal with those other observations which I should have desired, had there been time, to touch upon. When I first saw, then, that a meeting was to be called for a discussion on "The Standard of Naval Strength," the question naturally and at once arose in my mind as to whether we were to meet here to discuss *what*, in fact, should be the standard, or to discuss whether a *particular* standard (whatever it might be) was, in fact, being kept up. From the speeches to which I have already listened I imagine that the second was the object, and not the first. My first object, however, in rising, is to point out that there has been an entire misconception on the part, at any rate of the Press, and I think also on the part of Members of the House of Lords, and certainly on the part of Members of the House of Commons, as to what, in fact, is the two-Power standard. The two-Power standard which I understand to have been accepted (in word) by Mr. Asquith, is that attributed by the *Times* of yesterday to Lord Cawdor, our Chairman of this afternoon, who is alleged to have been the author of the following formula :—"That the standard of naval strength to be maintained by this country is to be represented by a preponderance of 10 *per cent.* over the combined strengths, in capital ships, of the two next strongest Powers." I read from the *Times*. Lord Cawdor will correct me if I am wrong, but that is not what Lord Cawdor's formula was. If you will turn to the JOURNAL of the Royal United Service Institution of February, 1907, you will find (at page 152), what the standard of Lord Cawdor was. The standard of naval strength which he formulated on the 3rd November, 1906, and which he then stated to have been during years past that of the Admiralty, was in the following terms: "The test the Admiralty applied to naval efficiency and the standard they had set up for years past as that which must be maintained, was that we must be strong enough in battle-ships alone to defeat any combination of any two Powers, and that we should have a margin over and above this for contingencies of some 10 *per cent.* This was the minimum which they had considered safe. With respect to our cruiser power, we needed and must maintain far more." You will see that Lord Cawdor's statement as to the minimum in regard to the two-Power standard was this :—That we should have a strength adequate to meet and beat the two next strongest Powers (whichever they might be), and that, over and above the superiority of force necessary to ensure such defeat, we should have a further 10 *per cent.* margin for contingencies. If you will reflect for a moment, you will see exactly the point. Contingencies are to be allowed for, because they may occur. If they occur, it is essential that we should still have a fleet so strong as to be able to meet and beat the next two strongest fleets in the world. If you only start with a fleet, the strength of which (apart from the 10 *per cent.* margin for contingencies) is on an equality with the combined strength of the next two strongest Powers, then, if those contingencies occur, you have only left, to cope with the next two strongest Powers, a

fleet which is not more than equal to theirs, and the result would be that you would not be able to meet and beat them. Therefore, my first object was to draw attention to the fact that any two-Power standard which is to be of avail to this country in the hour of war is one involving a 10 *per cent.* margin which shall be a margin over and above and beyond the capacity to meet and defeat the two next strongest fleets in the world. The next point I wish to impress upon you with great respect is this—and I think Lord Cawdor has already intimated in advance his agreement with the view which I was proposing to put forward—that no two-Power standard of battle-ships can be of any value unless it also provides for the complementary units, such as medium and small cruisers, scouts, destroyers, and torpedo-boats, and also the adequate dock accommodation, to enable the battle-ships of the fleet to have their full effect and consequence. In regard to the eyes and ears of the fleet, "whisker ships," whatever they be called, it is quite clear that, independent of the necessity of having ships for the protection of our commerce (in regard to which, at any rate in the last two or three years, very little has been done), we must have these ships as complementary to the battle-ships, and we must have them in their proper numbers. Just as every man has two eyes and two ears, it might be possible for the Admiralty to give some indication of the number of cruisers and so on which they think are essential for the battle-ships. If they will do that, it will give the public (who, after all, pay the bill) some method of ascertaining whether the Government of the day is doing its duty in regard to the matter to which I have referred. After all, a standard is nothing unless it is stable. It is nothing—as I gather from what the *Times* said yesterday—unless it can be "understanded of the people," and therefore it is necessary that the public should have something to go upon, in order to know that the Navy for which they are paying the bill is going to be efficient for its purpose in the hour of war. Then there is the most important point of all, that no two-Power standard whatsoever would be of the least avail to this country if, when the hour of war strikes, it be found that the component parts of the fleet are not in such a state of efficiency and repair as to be able to carry out the duties which would be cast upon them. Something has been said about the essentiality or otherwise of efficiency. If you look at what General von der Goltz, one of Germany's most competent and respected experts, said in an article written not many years ago, and in which he was looking forward to a bright future when Germany should be able to challenge Great Britain for the supremacy of the seas, you will find the expression of his considered views, that "numbers decide as little on sea as they do on land," that "numerical inferiority can be compensated for by greater efficiency." Nelson, it is true, said: "Only numbers can annihilate"; but Nelson was thinking of numbers which were efficient. Having touched upon these points, let us look upon one or two facts. In regard to the two-Power standard of battle-ships alone, we have listened to a very interesting speech from Mr. Burgoyne. I would ask you to observe, however, in regard to it that (with the exception of, in some slight degree, destroyers) he dealt in *Dreadnoughts* and large armoured cruisers alone, and did not touch upon any other matters whatsoever. Further, in what he said, he referred throughout—in the main at any rate—to Germany, and to what Germany was doing. That is, no doubt, not unreasonable, in view of the enormously increasing strength of Germany, but equally, you will observe that it does not take cognisance of the fact that it is a two-Power standard, and not a one-Power standard, that we have to keep up. It is the view, generally speaking, that at the present relative rate of construction,

Germany alone will have by the end of 1911 as many as 13 or 14 *Dreadnoughts* to our twelve.

A VOICE :—"No."

Mr. HORTON-SMITH :—When I say *Dreadnoughts*, I mean, of course, ships of the *Dreadnought* type. Be that so or be it not, let us recollect that that is only a comparison with one Power, Germany, and that we have to think (as I say) of the two-Power standard. When Mr. Asquith in March of this year was asked a question with regard to this matter in the House of Commons, he said in reply that if he found out Germany is likely to have an extra *Dreadnought*-type ship over and above ours at the date just indicated, he must see to it that Germany shall not possess that superiority. He therefore interpreted the two-Power standard, while accepting it in word, as a one-Power standard in fact. Now take this more recent declaration of his. No one is more delighted than myself to have got a clear declaration—for it is, at any rate, a clear declaration—but do recollect, as I have said elsewhere, that "words are not works," and unless Mr. Asquith translates his "words" into "works," they will not be of much avail to Britain at the striking of the hour of war. Let us remember, again, another important point. I have taken the trouble to ascertain exactly what money was being spent by Germany, because after all the respective amounts of money expended may be regarded as some criterion at any rate of the respective values of the fleets thereby provided. In the year 1901, if you recollect, the German naval estimates were only 9½ millions; they have risen in the present year to within an ace of 17 millions; next year they are to be 20¼ millions; the year after, 22 millions; and in 1911, which is generally regarded as the closing year of the present German naval programme, they are to be over 23 millions. In the meantime what have we been doing in the last three or four years? We have reduced our naval estimates to a point not greatly exceeding 30 millions, and do not forget in this connection that in our naval estimates there are many things included which do not occur in the German naval estimates. For instance, they have compulsory service in Germany and we have not; we have to pay people, and that amounts to a good deal. The cost of the Kiel Canal, again, goes down in the account of the Minister of the Interior in Germany, and not in the naval estimates. And such matters as pensions, which are borne by our naval estimates, do not go down in the German naval estimates, for the reason chiefly that there are not any to speak of. These things have to be taken into account when you consider the comparative amount of money spent by Germany and by ourselves. One word or so in regard to the matter of docks and efficiency. Take the docks first. What is the story of the Rosyth Dock? In 1903 the then Unionist Government came to the conclusion that docking facilities for battle-ships on the East Coast was one of the pressing naval questions, and land was purchased at Rosyth for the express purpose of building a large dock in order to accommodate the great ships which were then in course of building. That was in 1903. No work was done for some time, for the reason that it was necessary to have borings made in order to ensure that the building of the docks should be adequate, while other delays, partly due to the change of Government, also occurred. And it was only in December of last year (1907) it was publicly stated by Lord Tweedmouth, at that time First Lord, that the Government had only then, at last, come to a "final decision to carry out the work" of building this dock at Rosyth, although the land had been purchased for that express purpose no less than four years and a half before. It was then

further stated by the responsible Minister in question that it would take ten years to complete the dock, but this time has since, perforce, been reduced to seven. But only £30,000 is being spent this year, and we are not to have our first Rosyth until 1916, by which time we shall have more than twenty *Dreadnoughts,* none of which will have any dock on the East Coast into which to go. In the meantime the Germans have eight large docks, either completed, building or projected in the North Sea at this moment, of which at least two are already completed. That is a serious matter. I would call your further attention to the fact that when this point was mentioned in the House of Lords the other day, Lord Granard stated that six British *Dreadnoughts* could find shelter behind the boom at Sheerness, a solution of the question, which is no solution, and which no one is likely to treat seriously. I come to my last point—efficiency. What is the use of any two-Power standard—what even of a four-Power standard—unless the ships composing the fleets of Great Britain are in a position, when the moment of war arrives, to do their duty? Efficiency and repair go more or less hand in hand together. But there seems to be a pretty general consensus of opinion, amongst those who know, that the repairs of ships have been allowed to fall seriously behind. Take, for instance, the Channel Fleet; within the last two months there have been no less than eight (at one time, apparently, even nine) battle-ships of that fleet out of fourteen in dock for repairs at one and the same time. Those repairs ought not to have had to be so effected. It never should have been allowed in a fleet which has to bear the brunt of any war with Germany in the North Sea, that it should be divested of eight or nine out of fourteen of its battle-ships at one time. Take a second instance. What has been the history of the Nore Division of the so-called Home Fleet? The Nore Division, which is supposed to be the first reinforcement of the Channel Fleet in case of war, was started in the early days of 1907 in consequence of the outcry of public opinion. For the first nine months of its existence only six ships on an average out of some thirty-seven were available. In December of last year, out of thirty-seven ships there were only three ready—there were four ready, I should say, one being the *Dreadnought,* but she was away in the Mediterranean. Apart from her, there was only one cruiser (the *Warrior*) and two destroyers. By February, 1908, the number went up to six out of thirty-six, and when in March the Admiralty did their utmost to send that fleet to sea at full strength they could only, in fact, send to sea 50 *per cent.* of its battle-ship strength. The fleet went to sea 33 *per cent.* short of its armoured cruisers, and even to a certain percentage short of its destroyers. Before the naval manœuvres of July, some weeks' notice of the coming mobilisation had to be given to a fleet which was supposed to be instantly ready. I should like to have had a little more time to discuss other points, but I must close. I have had a very kindly hearing on the part of all present, for which I am exceedingly grateful.

Commander W. C. CRUTCHLEY, R.N.R. :—I only wish to correct one statement which I am sure was inadvertently made; it related to the "death-trap" sandwich boards. Those celebrated sandwich boards, sent out by the Navy League, did not refer to ships building, but to sixteen battle-ships, of which the names were given, armed with muzzle-loading guns. They had the effect which they were intended to create, and the ships were struck off the list. I may say with further reference to those much-abused sandwich boards, that I have heard many gentlemen express

the opinion that they were instrumental in preserving the peace of Europe to the present time!

Admiral of the Fleet Lord WALTER KERR, G.C.B. :—It gives me the greatest possible pleasure to move a vote of thanks to our Chairman, to whom we owe a debt of gratitude, for coming here to-day and presiding over our proceedings. Not only that, I think I ought to congratulate the meeting most heartily on having had such an efficient Chairman as Lord Cawdor, who not only introduced the subject in a very able way, but who has a great knowledge of naval affairs. He was First Lord of the Admiralty, and since that time he has paid a great amount of attention to the subject. I have the greatest pleasure in proposing a vote of thanks to Lord Cawdor for presiding this afternoon.

The CHAIRMAN, in reply, said :—I am very much obliged to you for your kind vote of thanks. It has been a great pleasure to me to preside to-day. I hope that our discussion has been a useful one. Certainly we have had some conflicting statements, which is the object of a discussion, and I think it can do nothing but good. As far as I myself am concerned, I came here hoping to learn and to hear different views, and my own opinion is that the more criticism of a friendly kind that any Government or any Admiralty can get the more likely they are to get to perfection in the management of the Navy.

DEFENCE OF HARBOURS BY FORTIFICATION.

By Brigadier-General R. F. JOHNSON, C.M.G., R.A.

Continued from January JOURNAL, p. 45, and concluded.

CHAPTER VI.

INFANTRY TACTICS.

I.—*On the Sea Fronts.*

AS artillery is the principal arm in the defence of a harbour against naval attack, nothing should be required of it that may lessen its efficiency in the service of the guns.

The detachments of such heavy guns as are only concerned with the prevention of bombardment can assist in guarding their batteries by night, provided they are not required to give occasional relief to those of the lighter armament; but in all other cases the guarding of the batteries must be undertaken by infantry.

The duties of these "Fort Guards," which should be placed under the command of the fire commanders in order to preclude interference and their employment for other purposes, are to protect the batteries and their adjuncts, such as electric lights, position-finding cells, etc., from small landed parties, and from treacherous damage or espionage. They have to provide gate guards, and picquets at the possible landing places in the immediate neighbourhood, and to man the gorges of the batteries.

In the anti-torpedo-boat defence they should take an active part by attacking the boats' decks with rifle and machine gun fire, which may also be effective against boom-smashers, blockers and raiding vessels, as the deck hands will often have little or no protection.

With the Fort Guards may be classed the guards of dock gates, stores, etc. The fire of these, without artillery assistance, will usually be sufficient to frustrate any attempt to launch torpedoes inside the harbour. Whether in some cases they should be assisted with electric lights is debatable; but as a rule it does not seem advisable, because darkness makes it difficult for the boats to locate themselves, and it would not be easy to avoid lighting up the objectives.

In the sea batteries, too, infantry can be quickly trained to assist in the service of the guns; but it is a makeshift arrangement, which should never be necessary if the garrison is constituted in accordance with the requirements of war. Things have greatly changed since the Royal Commission of 1859 considered it unnecessary to take into account the number of gunners required to man the armament it recommended, because they could be so easily obtained from the civil population!

II.—*On the Land Fronts.*

One of the most frequently recurring causes of success in attacks on fortresses has been the concentration of the garrison on threatened points enabling penetration of the defences at others. In the case of fortified harbours the assailants have great facilities for the execution of feints, because the reconnoitring power of the defenders is usually small, and the transference of transport ships from one landing place to another is very rapid compared with the moving of troops by land, especially when the harbour or its branches have to be crossed. It is true that wind may often prevent a simultaneous landing on more than one side of an island or peninsula; but in many parts of the world the direction of the wind is constantly changing, and often does so suddenly.

Therefore, the whole perimeter of a harbour fortress must be constantly guarded, and for the purpose a part of the garrison should be allotted, which it is convenient to call the "Line Guard." The remainder should form the "Reserve."

The strength of the line guard should be the minimum required to hold all parts of the main line of defence for a sufficient time to admit of reinforcement from the reserve at any point attacked. It should find the outposts, picquets at landing places, etc., in the immediate neighbourhood, but it should not, if it can be avoided, be employed farther afield, because if it is quickly driven in on to the entrenchments, as is not improbable, the enemy might be able to enter the lines with it, or some confusion might be caused at a critical moment. Its artillery support, where a serious attack is considered possible, will consist of guns of position which are movable but not mobile.

Large fortresses have generally to be divided into more or less independent sections, and in the smaller ones the extent of the perimeter or topographical features nearly always make a division of the line of defence into sub-commands advisable.

The more concentrated the reserve is kept and the more directly it is under the control of the fortress commander the better; but circumstances will more often than not compel a division of it among the sections or sub-commands. Indeed, in the cases of garrisons which are small for the perimeter, the nearness of landing places and the difficulty of transferring troops and guns from point to point will often prevent the formation of a distinct reserve; but even then, part of the line guard in

each sub-command should be treated as a reserve, and arrangements made for its being moved elsewhere if occasion arises. Sometimes it may only be necessary to distribute the mobile guns of the reserve, as the transport of the infantry usually presents much fewer difficulties.

The duties of the reserve are to hinder the enemy's approach, to reinforce the line guard, and to prolong resistance by occupying secondary positions.

There is no doubt that a small amount of defence, even with a few rifles, may greatly increase the difficulty of effecting a landing. Therefore, where the strength of the attack to be expected is small, the possible landing places are few, and the time at the assailants' disposal is short, arrangements should be made with the object of preventing, or impeding, landings. In many, if not in the majority of, cases, however, these conditions will not be found combined; and when they are not, to scatter the forces of the defence in the way that would generally be necessary is a tactical mistake, of which the gravity increases as the garrison is small compared to the extent of the fortress. The progress of the attack should always be checked as far in front of the main line of defence as possible, but how far this may be must be a matter for grave consideration.

In reinforcing the line guard the desirability of giving the defence an offensive character should be borne in mind. When circumstances, such as the weakness of the attacking force or the shortness of the time at its disposal, will probably confine the advance to the neighbourhood of the coast, it may be more effective to use the reserve on the flank rather than to increase the numbers on the main line.

When the main line can no longer be held, the struggle should by no means be abandoned, for irreparable damage can seldom be done until the assailants have reached and are in possession of the object defended. Old fortified enceintes of towns may prove of very great use, and should not lightly be demolished. Even when they have been blinded by buildings on their glacis, the ditch and its scarps may prove sufficient obstruction to obtain the delay required for the arrival of relief, because it is improbable that a raiding force will have the equipment for an assault. A few hours may make all the difference between the fortification succeeding or failing in attaining its purpose.

Such being the principles of action, the means of defence must be suited to them.

The gun emplacements should command as large a field of fire as feasible, and while they should be concealed by their construction or by artificial screens, they need seldom be placed in positions necessitating indirect methods of laying, except in the case of the mobile field guns of the reserve, which may have to come into action during the fight. The guns of position should be grouped for the purpose of fire control, but the intervals should not be small, the control being exercised by means

of telephones. Full use should be made of the guns being movable, and each should have more than one emplacement, so that the enemy may not be sure of their positions, and the field of fire altered as occasion may require.

The infantry entrenchments should be well in front of the guns to protect them and to deepen the defence. At Port Arthur the Japanese were more than once checked after capturing advanced works by the converging fire of the more rearward guns. Concealment and a flat, open field of fire are of more importance than "command" of site. Indeed, where restriction of front is desirable, the attack may without injury be conceded some considerable "command," as long as it does not disclose movements in rear of the line.

When the troops are not of the best quality, some field redoubts had better be constructed to serve as rallying points in case a night attack is made, and it may be desirable to withdraw the guns under their protection, if they cannot be placed quite close to the emplacements.

Bullet-proof block-houses, too, may be of use. Where the routes of approach are few and well-defined, and positions can be found for the block-houses, which are screened from hostile guns but covered by those of the defence from central sites in rear, they supply a method of holding a portion of the front, which is very economical in men. They are very suitable for closing ravines, which may serve as covered approaches to the lines.

Every advantage should be taken of the conditions of fortress warfare that favour the defence, such as the power to have all stores close to where they may be wanted. Ammunition, especially that for guns, requires much transport, of which a fortress usually has but little, but sufficient should be stored near the positions selected. Entrenchments nowadays must afford cover for the head and shoulders, which it is difficult to improvise without impairing concealment, and for which suitable materials are often wanting; bullet-proof shields are too bulky to carry in the field, but there is no reason against their use in fortress defences except the initial expense, which should not prevail against their obvious advantages. Reliance should not be placed on visual signalling, as the troops composing garrisons can seldom supply anything like the number of trained men required; but there is no good reason why every sentry should not be provided with an electric bell to his picquet, and every picquet with telephone communication with its support. The farther removed the nature of the works is from a permanent character, the more are the stores, etc., required to fully develop their powers of defence, wanted.

It is hoped that what has been said is sufficient to indicate broadly the amount of land defence required for fortified harbours to enable them to perform their limited *rôle* in naval warfare. The works and their garrisons should not be stronger than is necessary to make an enemy pause before undertaking

their attack, and to delay the progress of an attack sufficiently to enable relief to be sent by sea or land without the disarrangement of strategical plans. It is no use making them strong enough to stand a regular siege, for if such is possible their value as a means of naval warfare cannot be great enough to justify the expense of fortification.

CHAPTER VII.

ORGANISATION.

In previous chapters "Sections" and "Fire Commands" have been referred to without sufficient explanation for readers who are not acquainted with the definitions given in "Garrison Artillery Training," and even for those who are, an interpretation of the terms will not be out of place.

"Section. A sub-division of a coast fortress for purposes of organisation and fighting. *This sub-division only exists in the larger fortresses.*"

"Fire Command. A sub-division of a *fortress* or section for purposes of organisation and fighting, constituting the highest unit of executive artillery command."

The words in italics show the additions made in the last revision, and they are of great importance.

It is nearly always necessary for tactical purposes to divide a fortress into "sub-commands," and when one of these is so detached as to require a separate organisation for administration, the definition of a section describes its nature. The Western Forts on the Isle of Wight are such a sub-division of Portsmouth fortress.

When, however, all parts of a fortress are administered as a whole in peace, they should continue to be so in war. The greater portion of the garrison will always be employed in the defence of the land fronts, and too much decentralisation in that is to be deprecated, because the action will in the end chiefly depend on the use of the reserve, and the garrisons of sub-commands can only be regarded as strong outposts. The more the tactical division is freed from the influences of administration the better.

In the definition of a fire command, it would be better to omit the words "or section" and to treat all fire commands as distinct sub-commands of the fortress. The fire commander should, under the fortress commander, have complete control of the defence against sea attack, and have at his sole disposal the engineers who work the electric lights and the fort guards of infantry. When a fire command is treated as a sub-division of a section it is often impossible to avoid the artillery officer, who should, and sometimes must, be the fire commander, being section commander on account of his seniority. As the duties of the two posts are entirely different and may have to be carried out simultaneously, the arrangement is tactically wrong, and no administrative consideration can justify it.

The administrative units, battalions, companies, etc., should be maintained, and if one is divided between sub-commands so that its detachments cannot be administered by its headquarters, they should be attached to the headquarters of others. Special units should not be formed, as the trained staff and office establishments will not be available.

An example of a totally wrong organisation will explain what is meant.

The arrangements for mobilisation in a compact fortress, which it is not necessary to name, at one time provided for its division into six small sections, each with its separate commissariat and ordnance stores. The garrison of each section composed of small detachments of troops with very different organisations and requirements was to be formed into an administrative unit under the section commander, who in some sections was to be a detached major with no office establishment at his disposal. The sub-division was also tactically wrong, because in his most probable line of advance an enemy would have driven the garrisons of two sections into a third, and that would sometimes have been commanded by a fire commander.

Modifications in the details of administration, the issue and distribution of supplies and stores, the disposal of sick, etc., will generally be unavoidable on mobilisation, but they should always be kept as small as possible; and in the sub-division of a fortress into sections or sub-commands, tactical considerations must be supreme.

Over-sea operations cannot be undertaken in force until the command of the sea has been to some extent obtained, and fortified harbours are the points most liable to attack in the opening stages of the war; consequently it cannot be necessary, and it must be undesirable, to remove from fortresses any of the *personnel* acquainted with their ordinary administration before their mobilisation has been completed, though reservists can very well do the work afterwards. No matter how carefully and fully the plans for mobilisation may have been elaborated, there is certain to be some confusion and delay if all concerned have not the necessary local knowledge.

The artillery has to be divided into two bodies: one distributed among the fire commands to man the fixed armament; the other among the sections, or sub-commands, and the reserve to man the movable and mobile guns.

If more than one class of troops (Regular, Special Reserve, Territorial, etc.) are employed, the distribution must be made in accordance with their previous training and abilities, and the following conditions must be kept in mind.

In the sea defences there are three classes of guns: (1) the heavy, (2) the medium, (3) the light; and in the land defences three more: (4) the heavy movable, (5) the howitzers, (6) the light mobile. Broadly speaking, the conditions attaching to the service of these classes may be said to be as follows:—

1. The heavy guns have large targets moving at no great speed, which have to be injured but not necessarily disabled. The laying can be controlled and corrected by officers. The fire can and should be concentrated, and its observation is comparatively easy. The time available to gain the effect wanted can be computed in minutes. The action takes place in daylight, and sudden unexpected attack should be impossible.

2. With the medium guns, except when used against torpedo boats or to prevent bombardment at commercial ports, the targets are large and not swift, but they have to be disabled. The action takes place in the hours of darkness or in misty weather, and the time is short for the work that has to be done. The laying is little under the control of officers, and the layers must have much practice, personal skill and judgment. The attack may commence without warning, though it ought not to.

3. The action of the light Q.F. guns will almost always take place in the hours of darkness, and the effect of each gun depends on the skill of the layer, who requires as much practice with his weapon as a rifleman. The targets are small and swift and capable of quick change of direction, and they must be disabled and stopped. The fire has to be distributed in accordance with pre-arranged plans, and efficiency can only be assured by constant training, of which actual practice by night is an indispensable part. The attack may be made without any warning, and may have to be watched for during a considerable period before as well as after the commencement of hostilities, and when it is made the time available for its repulse is to be computed in seconds. With such conditions it is beyond dispute that the officers and men must be constantly available, and constantly practised, and that the most perfect physique and discipline are essential.

4. To get the full advantage of substituting in the land defence heavy movable guns for the heavier ones on fixed mountings formerly used, the officers must be properly trained in the selection of positions, and they and the men should have experience in moving the guns, and in entrenching them.

5. The same knowledge is required for the service of howitzers, and also a highly-trained body of specialists has to be provided.

6. With the mobile field, or mountain, guns, thorough acquaintance with the ground gives an immense advantage, and familiarity with the use of the means of transport is a necessity.

"Second-line" troops, raised in the immediate neighbourhood and *sensibly* trained, should be able to perform a large part of the artillery duties in fortresses; but Regulars should man the anti-torpedo-boat armament, and are also preferable for the medium guns mounted to stop blockers and raiding vessels.

The engineers, who work the electric lights in the sea defences, have to be told off to them as the gunners are to the guns; but there is an advantage in keeping those assigned to

duties on the land fronts concentrated, because divided amongst the sub-commands and spread over the whole perimeter they will often be too few to be of much use anywhere.

If "second-line" troops are employed with electric lights, they should be trained in their fighting stations, for on the sea fronts another corps' efficiency depends on their co-operation, and on the land fronts, knowledge of the ground is equivalent to a certain amount of training.

The infantry, as explained in the last chapter, should be divided into fort guards, line guards, and reserve.

As the fort guards have particular duties and can seldom if ever be taken for others, it is advisable to detail them from units other than those finding the line guards. The duties are suitable for "second-line" troops.

The reserve should certainly be composed of the best troops, but local knowledge is an imporant factor in determining the value of any unit; and although the same familiarity with the neighbourhood may not be so necessary for the fort and line guards, a fair amount should be possessed by the greater part of their officers.

Although the attack and defence of a fortified harbour may be a matter of hours, its garrison may have to be kept alert for months, during which there will be an entire lack of the excitement associated with field operations. It is, therefore, necessary for the maintenance of the men's health and *moral* to make them as comfortable as possible, and they should be placed in huts, if permanent buildings are not available in the near vicinity of their fighting stations; and when the works of defence have been constructed, measures should be taken to prevent idleness, which should comprise a due amount of amusement.

There is a very difficult problem conected with the defence of fortresses—the prevention of espionage.

If the population is hostile or the period of occupation of the tract of country within the perimeter of defence is not long, the measures can be of the same nature as those adopted in field operations; but at defended harbours the population is generally composed of one's own subjects, and the period during which the service must be maintained will usually be long. The perimeter of defence will in most cases comprise a considerable amount of country with many inhabitants, and it is obviously impossible to entirely stop the whole agricultural and other business for a long period. If any traffic through the lines is permitted, it is pretty certain that espionage will not be entirely prevented, and whatever measures of control are adopted, considerable loss and annoyance will be caused.

For these reasons, as long as an attack is not imminent, the arrangements will, as a rule, have to be confined to the prevention of a close examination of the works, and the co-operation of the civil authorities and the police will have to be relied

on for the exclusion of strangers and suspected persons; and a corps of special constables may be the best means to employ.

A state of war generally necessitates some restriction of the usual liberties of the population, and in all cases it is desirable that the enforcement of the special regulations shall, as far as circumstances admit, be left to the civil authorities.

In preparing schemes of defence there is one golden rule: everyone responsible for the arrangements should prepare them with the idea that he may be called on to carry them out to-morrow. Conditions that are not actually existent must not be assumed. It is no good to dispose of guns that are to be provided at a future date, or to appropriate buildings which the owners may not allow to be occupied. Fortified harbours will generally have to be prepared for defence before a state of war exists, and the plans should as far as possible be such as can be practised in peace.

The principles, then, to be kept in view in organising the defence of a harbour are:—

1. To fulfil the tactical requirements.
2. To give every officer and man a distinct duty suited to his capacity, and to insure undivided responsibility.
3. To found all plans on existing conditions.
4. To avoid changes on mobilisation in the administrative system which obtains in peace.
5. To secure the co-operation of the civil authorities.

An opinion is sometimes expressed that fortress warfare does not differ in principle from any other branch of the art of war. All principles are founded on common-sense; but the application of common-sense requires knowledge, and the writer will be satisfied, whether his views of it prevail or not, if he has succeeded in showing that the defence of harbours is a branch of the art of war worthy of special study.

NOTES ON THE GUN ARMAMENT OF LARGE BATTLESHIPS.

Translated from an Article by Lieutenant G. PECORI-GERALDI, Italian Navy, in the *Rivista Marittima* for April, 1908.

Communicated by the Director of Naval Intelligence.

IN view of the very great importance which is now attached to the choice and disposition of the armament of large war-vessels, though realising that I am far from possessing the competence of the numerous expert writers who have freely expressed their ideas on this subject, I venture to offer the following general remarks on this interesting topic.

For the sake of greater clearness and conciseness I have divided this essay into three parts. In the first part the subject of large turrets is briefly dealt with, and two-gun turrets are compared with three-gun turrets, in view of the fact that, concurrently with the increased displacements of armoured ships, the idea of introducing turrets with three guns of large calibre is gaining ground. In the second part, the principal questions relating to the secondary or anti-torpedo boat armament are discussed; and, lastly, in the third part, the conclusions arrived at in the two preceding ones are followed by two suggested schemes of gun armament for a battleship of large displacement.

I. COMPARISON BETWEEN DOUBLE AND TRIPLE TURRETS FOR GUNS OF LARGE CALIBRE (12-INCH).

For some years armoured turrets with two 12-inch guns have been installed in large battleships, and it is to be observed that, as the result of recent improvements, such installations have attained to a remarkable degree of practical efficiency and perfection, amply satisfying the requirements of modern gunnery, such as rapidity in firing and effectiveness at long range.

Recently, however, the question of turrets containing three 12-inch guns has been mooted, and since their principal characteristics are known, a brief comparison between them and turrets with two guns of the same type will be of interest. This subject will be considered from the points of view both of the armament and of ship design.[1]

---

[1] The details adduced later have been culled from the most recent works ("The Naval Annual," 1907, Jane, and others), and also from information kindly supplied by Messrs. Armstrong, of Pozzuoli.

Weight of the Installations.[1]—The weight of a complete installation with two guns of 12-inch calibre, of the latest model and with hydraulic machinery, is about 475 tons; the weight of a complete installation with three 12-inch guns, and of the same type as regards construction and working, is about 660 tons. Thus the weight of three 2-gun installations is about 1,425 tons, whilst the weight of two complete installations with three guns each is about 1,320 tons, the difference being thus about 100 tons in favour of the 3-gun turrets.

With regard to the very important question of the weight of the fixed barbette armour, allowing for identical dimensions of height and thickness of armour, the weight of this barbette armour for a 2-gun turret is about 300 tons, whilst that for a 3-gun turret is about 350 tons; so that, with two triple turrets instead of three double turrets, the difference in weight would work out at about 200 tons. In all, the gain in weight obtained by the adoption of two triple installations in place of three double ones would be about 300 tons—a matter of considerable importance. It is necessary, however, to take into account the greater weight which would be required for the increase in the mass of the supports for 3-gun turrets, although two turrets with three guns each would occupy less space than three 2-gun turrets.

General Working of the Turrets.

In both 2-gun and 3-gun turrets the various movements are effected by means of hydraulic pressure supplied by a pump fitted for the purpose.

The loading, elevating, and training apparatus, etc., are in every way identical in each turret; the only difference to be observed is that, whilst there is a single hydraulic engine for the training in the case of the 2-gun turret, in the case of the 3-gun turret there are two such engines, which are independent, so that either can work the turret, but are so installed that it is possible to connect them in order to work them together if required. This latter arrangement affords a considerable advantage over the former in case of accident to one of the engines.

It would appear from the details supplied that twelve men should be sufficient, both for the 2- and the 3-gun turrets, in order to obtain a slow rate of training when working by hand.

[1] By "weight of a complete gun installation" is meant the weight of the whole movable part of the turret, over and above the weight of the part fixed to the ship, of the support of the turntable, which includes the live roller ring, with the corresponding roller path, and the toothed arc of the training gear. In the comparison it has not been possible to take into account the weight of the fixed machinery for supplying power to the turrets, owing to lack of details; it may be accepted in any case, that there would be very little difference in this weight between three double turrets and two triple turrets, since there is no appreciable difference in the weights of the moving parts of the respective turrets.

It is, however, improbable that with the triple system, and its considerably increased weight, the same number of men would be sufficient to effectively control the turret; moreover, the rate of training would probably be still slower than in the 2-gun system.

In the 3-gun installations, since it would be necessary to provide three ammunition hoists instead of two, there would be a greater accumulation of projectiles and charges; but with suitable means, provided there is sufficient space available, this should not hamper the rapidity of fire.

Both in the 2-gun and in the 3-gun turrets the training of the turret is carried out by a single trainer in the rear sighting hood. The responsibility for the training of all three guns is thus centralised in a single man, and this is a point to be taken into consideration.

Furthermore, it must be taken into account that it is an easier matter to provide a smaller number of the best gun-pointers than the larger number which would be required in the event of all the turrets being 2-gun ones.

With regard to control of fire, transmission of orders and ranges, etc., it may be accepted that, with a smaller number of turrets, these important and delicate operations will tend to become simplified, whilst it will be possible for the officers, whose numbers on board are never too many for general quarters stations, to exercise better supervision. It will, furthermore, be possible to reduce the turret crew.

A matter which must be considered is the rotary motion which is imparted to a turret when a gun is fired. In the case of the 2-gun turret, the movement of rotation when a single gun is fired is about $2° 20'$, whereas in firing one of the outer guns of the 3-gun turret, the lateral distance of the axis of the gun from the vertical plane drawn through the centre of the turret being twice as great, it is to be anticipated that the rotation will be more than 4°. It will be understood that in the 3-gun turret an enormous strain will be transmitted to the main shaft of the training gear, to frictional clutches, and to the hydraulic training engine; and although the strength of the material may always prevent injurious effects, frequent adjustment of the various toothed gears, wheels, and couplings will be necessary. Other mechanisms will, of course, be injuriously affected, to some extent, by this shock.

The arcs of fire obtained with the 2-gun system will now be considered. It would appear from the plans (see pages 198 and 207) that, whilst the 2-gun turrets have a total all-round arc of fire of 300° (*i.e.*, 150° on each side of the centre line), in the case of the 3-gun turret the total arc is only 260°. This reduction is based on the following hypothesis. Given the ordinary arrangement of the superstructure of ships, if a 2-gun turret has a field of fire of $x°$, the field of fire of a 3-gun turret, installed in place of the 2-gun turret and in a similar position, must evidently be less

than $x°$, since the outer guns are at a considerably greater distance from the centre line of the turret. A reduction of 20° in the angle of training on either side appears to be a very considerable one, and it would be very easy to point out the tactical disadvantages which might manifest themselves as the direct consequence of this reduction. Looked at from this point of view, the turret with three 12-inch guns appears in a distinctly unfavourable light when compared with the 2-gun turret; but this disadvantage must not be attributed to the turret in question, for it should be possible, by a judicious arrangement of the superstructure, to give the same field of fire to a triple installation as to a turret with two guns.

For the purpose of discussing the respective advantages of installing turrets with two and turrets with three 12-inch guns on modern battle-ships, it will be convenient to take the specific case of a modern armoured ship which is to have an armament of ten 12-inch guns, and to consider the general disposition of the guns, proceeding upon the assumption that the greatest possible number of guns shall be able to fire on each broadside.

Taking the case in which a ship is to be given ten 12-inch guns in 2-gun turrets, it would appear from an examination of figs. (a) and (b) on page 198, that if one of the most important conditions governing the disposition of a modern ship's armament is to be complied with, viz., that it shall be possible to fire all the guns of large calibre on both broadsides, an arrangement[1] such as that shown in fig. (a) must be resorted to; but, when one comes to consider the turret marked (x) in the centre of the ship, it is evident that such a system of armament could only be adopted if the funnels were abolished and gas or internal combustion engines used. Hence the arrangement shown in fig. (a) appears to be purely a hypothetical one, and it would seem that if it is desired to provide a battleship with ten 12-inch guns capable of firing all its pieces through an extended arc on either broadside, some such method as that shown in fig. (b) might solve the problem, provided that triple 12-inch gun turrets were adopted. That being so, an arrangement of the armament on the lines of that approved for the new English cruisers of the *Inflexible* type, but with the substitution on the centre line of two turrets containing three 12-inch guns each, might be considered.

However, in view of the space required by the secondary armament and the desirability of increasing as much as possible the zones of maximum offensive power, a still more advantageous arrangement than that shown in fig. (b) might be that shown in fig. (c), where the two double-gun turrets are also placed in the centre line and at a greater height than the triple turrets.

---

[1] The disposition shown in the figure is not a new idea.—*Vide Rivista Marittima*, April, 1907, p. 133.

Let us now examine in greater detail the advantages and disadvantages of the arrangements shown in figs. (b) and (c).

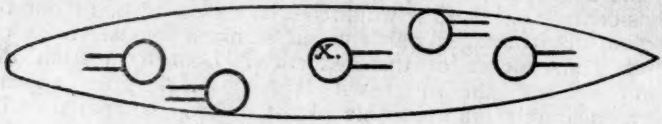


Fig. a. 10–12" guns.

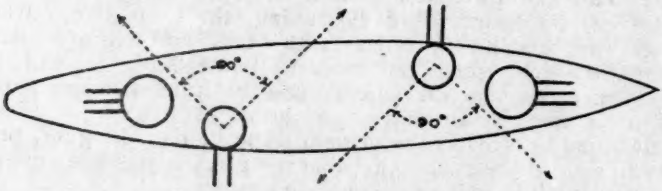


Fig. b. 10–12" guns, with two triple turrets.

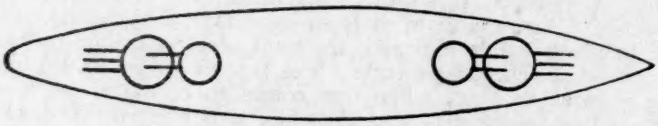


Fig. c. 10–12" guns, with two triple turrets

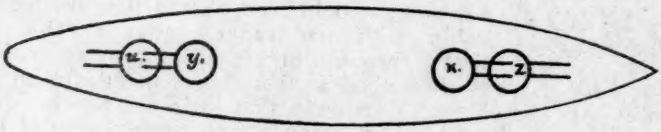


Fig. d. 8–12" guns.

Fig e. 9–12" guns, with three triple turrets.

If 3-gun turrets were introduced they would enable all the guns to be fired on either broadside, whereas with a disposition

such as that adopted for the *Dreadnought* type of battleship only four-fifths of the fire can be so utilised. This would appear to be one great advantage gained by introducing the triple installation. It is true that with the armament shown in fig. (b) the fire of all the guns on the broadside would not be possible at a very large angle, but with the superstructure of the ship judiciously arranged, it may be anticipated that this angle would prove to be not less than 80° to 90°. In any case, with the arrangement in fig. (c), which we prefer to that of (b), the zone of maximum destructive power would be contained in a sector of not less than 100°.

As far as all-round fire is concerned, supposing that the position of the superstructures were subordinated *as much as possible* to the armament, it may be assumed that the triple turrets could be ensured an arc of fire of at least 280°.

The following are further advantages and disadvantages:—

a. Two triple turrets offer a smaller target than three double turrets; on the other hand, if one of the triple turrets is disabled, a larger proportion of the offensive power of the ship is rendered *hors de combat*. It may be observed, concurrently, that recent naval actions have proved that big gun turrets are rarely put out of action by gun fire; it is true that several big guns have been seriously damaged in action, but generally the turrets still continued to work. It may, therefore, be assumed as a result of the great distances at which battles will probably be fought in the future, and the toughness of modern armour, that there is very little chance of a projectile perforating the armour of a turret and penetrating to the interior of the same in such a way as to jam it.

b. With triple turrets there would be a larger quantity of ammunition at the extremities of the ship. This is a point to be kept in view in considering the ammunition supply to these turrets. It is in conflict with an important principle of modern naval construction, which requires that the outfit of ammunition shall be distributed as much as possible, with the object of diminishing the injuries produced by explosions below the water-line.

c. For equal gun armaments, the space occupied, in a longitudinal direction, by the triple-gun turrets is considerably less than that required by the two-gun installations, the former thus being in a position of advantage as regards the placing of other machinery in the ship.

If the projected ship is to be one of smaller displacement, with her principal armament consisting of less than ten 12-inch guns — say, for example, that it is desired to arm her with eight 12-inch guns, then the most convenient arrangement would be that projected for the new American battleships of the *Michigan* type, as shown in fig. (d). By such a disposition of the guns, it would be possible to employ their fire on either broadside. Moreover, the results of the

most recent experiments carried out in the United States Navy[1] appear to show that the guns of the upper turrets (x, y) can be fired right ahead or right astern, without injury to the *personnel* of the lower turrets (z, u).

In any case, it ought to be possible to fire the guns of all four turrets at a very few points off the fore and aft line.

If it were required to instal six instead of eight 12-inch guns, the desired object would be attained, either by means of two triple turrets or by three double turrets, placing them all, in either case, on the centre line of the ship; however, it is considered that, on the whole, it would be better to adopt the second idea, and not to instal the three-gun turrets.

Finally, we have added fig. (e) to illustrate a ship armed with nine 12-inch guns. This last arrangement possesses (in common with those shown in figs. b, c, and d) the notable advantage of enabling the fire of all the guns to be concentrated on each beam; it is questionable, however, whether it would be practicable to place two triple turrets aft in such a ship, both on account of the severe shocks which would be experienced in simultaneously firing all the guns, and also on account of the great dimensions of the turrets and the large quantities of ammunition which would have to be stored in the magazines below.

The newly-projected triple turret with heavy calibre guns marks a further important advance in the construction of ordnance *matériel*, and, regarded from this standpoint, cannot fail to arouse the admiration of those interested in the study of this most important arm of naval warfare; nevertheless, the advantages which would result from the adoption of these three-gun turrets do not appear to be sufficiently important to warrant their immediate universal acceptance.

We think, however, that it would be wise to pronounce in favour of triple turrets when, and only when, their adoption would achieve the object of concentrating the fire of the whole armament on either broadside; a matter which is indisputably of the foremost importance in studying the disposition of the guns on the latest battleships.

II.—The Secondary Armament of Modern Battleships.

From a study of the armament of large armoured ships of the principal navies, it is quite evident that during recent years there has been a gradual increase in the calibre of the secondary armament, and that the present tendency is in the same direction. Thus, the 3-inch gun, which was formerly considered sufficient for the purpose, was superseded by the 3.9-inch gun, then 4.7-inch and 5-inch guns were substituted (the latter in the new battleships of the United States Navy); and, finally, accord-

[1] *Vide* "*Rivista Marittima*," June, 1907, p. 533, and "The Naval Annual," 1907.

ing to the latest information published by the *Rivista Marittima*,[1] 6-inch guns are to be installed in the new battleships projected for the Japanese Navy.

It is also well known that the secondary armament has undergone the greatest variety of changes in the manner of its installation on ships, both as regards position and also as regards protection; in fact, examples are not wanting in which the guns of small calibre have been protected by means of very defective shields; and in other cases, of which there are numerous instances, they have been left entirely unprotected.

With reference to the remarkable increase in the calibre of these guns, and to the recognised necessity for effectually protecting them, it is considered that, taking into account the exigencies of the construction of large battleships nowadays, the most advantageous method of installation for 4·7-inch and 6-inch guns is to place them in pairs in turrets, as this system, besides presenting the smallest possible target, ensures an ample arc of fire and possesses the qualities of practical efficiency and rapid working, so essential at the present day. In the following remarks, such a system of installation is referred to.

Before examining the principal causes which have contributed to the successive increases in the calibre of the guns of the secondary armament, its function in war and its latest requisites will be briefly alluded to.

The fire of the guns of the secondary armament must serve to:—

1. Successfully repulse attacks by torpedo craft.
2. Fire ranging salvoes, in order to determine the range, and thus assist the fire of the heavy calibre gun.
3. Demolish the unarmoured parts of ships, the superstructures, etc., and demoralise the crews.

In order to effectively perform the first function mentioned above, it is necessary that the secondary armament of the ship shall be what is commonly called "light," as well as numerous and advantageously distributed, and that it shall be quick-firing, so that it can cause a veritable "hail of fire" to descend upon the small craft attempting to deliver an attack, and thereby render such an attack futile by the infliction of material damage as well as by the moral effect of the fire.

These insidious little craft are managed with intelligence and daring, and to stop them and render their attack unsuccessful it will be necessary to inflict more than slight injuries upon them; hence, the fire of the small calibre guns of the ship must be as intense and accurate as possible, and the said guns must discharge such types of projectiles as are best suited to the nature of the targets presented to them.

[1] *Vide* the May, 1907, issue, p. 318.

To properly perform the second function, that of "ranging," and also the third function indicated above, it will be necessary that the guns shall be sufficiently powerful and effective at long ranges, besides being accurate and perfect in their manipulation; moreover, there always remains the necessity for rapid shooting in order to enable the ranging-salvoes to be fired and the correct gun range to be ascertained in the shortest possible time.

From a consideration of what has been said above it would appear that the secondary armament of the ships must, in part, fulfil contradictory conditions; but, bearing in mind what took place during the most recent naval actions, it is apparent that the present tendency to increase the calibre and the power of these guns is a reasonable one, even though something is sacrificed in rapidity of fire, facility and lightness in working, and supply of ammunition.

With the increase in the speed and accuracy of running of the latest pattern torpedoes, the distance at which they will be discharged has also undergone a considerable increase; consequently, the smaller calibre guns must be effective not merely at "short range" but also at distances of from 2,000 to 3,000 metres (2,200—3,300 yards), at which a torpedo boat, on account of her invisibility, at one time could have easily eluded the vigilance of the enemy. To-day the same thing will not be possible for the new ocean-going torpedo boats, or for the torpedo boat destroyers, whose dimensions show signs of still further increase.

The fire of the guns of the secondary armament must, therefore, be very accurate and of high potentiality, at much greater distances than hitherto. To attain this, the danger space must be large, and, consequently, the velocity high; moreover, the projectile must be sufficiently large. Hence arose the necessity for increasing the calibre from 3-inch to 4.7-inch—since the first mentioned had but very small effect at ranges of more than 3,000 metres (3,300 yards), having a remaining striking energy, at that range, of only 27 *dinamodi*[1] (87 foot-tons), and a danger space of only 58 metres (63.4 yards), for a target 6 metres (6.6 yards) high, and of 19 metres (20.8 yards) for a target 2 metres (2.2 yards) high.

There is still another reason, connected with their functions as ranging guns, for increasing the calibre. With the increase in the distance at which battles are fought, a point has been reached to-day at which fire is opened at ranges varying from 6,000 to 8,000 metres (6.600 to 8,800 yards) or more. (This is amply confirmed by recent naval actions.) Now, during firing practices it is not practicable to range with guns of large calibre, and the same would probably apply to actual warfare. If, on the other hand, the secondary armament consisted only of 3-inch guns,

[1]See Note at foot of page 209.

the observation of the fire of such guns would be difficult, if not impossible, at distances of 5,000-6,000 metres (5,500-6,600 yards); moreover, the accuracy of this weapon at such distances is not what is required of a ranging battery. From this it follows that battleships building to-day should carry a secondary armament of guns of considerably larger calibre than 3-inch, and a suitable calibre would appear to be the new model 4.7-inch.

By using only the 4.7-inch gun as an anti-torpedo boat gun, a smaller "volume of fire" will be obtained than by using 3-inch guns, for two reasons: firstly, on account of the reduction in the number of guns carried; and, secondly, on account of the slower rate of fire; but, to compensate for this, a much greater effect would be obtained at medium ranges, together with a much greater probability of hitting—advantages which appear to more than counter-balance the disadvantages already enumerated. Further, the calibre of 4.7-inch is also suitable for guns of the ranging battery of the ship. This subject will be dealt with later. We will now consider the employment of a larger calibre than the 4.7-inch, viz.: the 6-inch. Although the 4.7-inch gun is, perhaps, the most suitable anti-torpedo-boat gun, yet the calibre of the ranging gun directly depends upon the primary armament of the battleship in question; therefore, whilst making the weight of fire that can be brought to bear against small craft as heavy as possible, the guns which constitute the main armament of a large ship should be considered.

It is well known that on some battleships and cruisers of large displacement, one large calibre only is now employed, viz., the 12-inch (on the new English, American, Japanese, etc., ships); other nations still prefer instead to use two calibres, and, in addition to the 12-inch guns, have 10-inch, 9.4-inch, and 8-inch guns (Austria, France, and Russia); finally, on some of the armoured cruisers of smaller displacement, there are 10-inch and 9.2-inch, together with 7.6-inch guns (England, Italy, etc.)

In the former case, viz., when only 12-inch guns are mounted on board, it will *never* be advisable to adopt a smaller calibre than 4.7-inch for the secondary armament, for the reasons already explained. It may not be wrong to assume that, in time, the calibre of 6-inch may be reached—an idea which appears to have already gained ground in the Japanese Navy. In the other cases, viz., when, together with 12-inch guns, there are guns of 10-inch, 9.4-inch, 8-inch, etc, the advantage of increasing the calibre of the smaller gun to more than 4.7-inch appears to be considerably lessened, since if this calibre were on any occasion not considered suitable for constituting the ranging battery, the 8-inch or 9.4-inch guns could be used for this purpose—the 9.4-inch outside 6,000 metres (6,600 yards) —without incurring a dangerous expenditure of ammunition.

To illustrate what has been already written, the following table has been compiled; it gives a brief comparison between pairs of guns of 4.7-inch and 6-inch calibre:—

152 mm. (6-inch) guns mounted in pairs.	120mm. (4·7-inch) guns mounted in pairs.
Weight of gun (50 cal.), 8,890 kg. (8¾ tons).	Weight of gun (50 cal.), 3,352 kg. (3 1/3rd tons).
Weight of projectile (mean) 45 kg. (99 lbs.)	Weight of projectile (mean) 20·4 kg. (45 lbs.)
Weight of charge (M.D. cordite), 16·8 kg. (37 lbs.)	Weight of charge (M.D. cordite) 6.8 kg. (15 lbs.)
Muzzle energy, 2,010 *dinamodi* (6,492 ft. tons).	Muzzle energy, 841 *dinamodi* (2,716 ft. tons).
Muzzle velocity (approx.), 900 m.s. (2,953 f.s.)	Muzzle velocity (approx.), 900 m.s. (2,953 f.s.)
Approximate weight of one turret for two guns, 70,100 kg. (69 tons).	Approximate weight of one turret for two guns, 49,700 kg. (49 tons).
Total approximate weight of one installation with two guns, 87,880 kg. (86 tons).	Total approximate weight of one installation with two guns, 56,488 kg. (55½ tons.)
Total weight of five installations with two 6-inch guns each (approx.), 439·4 tons.	Total weight of 8 installations with two 4·7-inch guns each (approximate), 451·9 tons.
Muzzle energy per minute for each turret, allowing for six rounds per minute from each gun, 24,120 *dinamodi* (77,904 ft. tons.)	Muzzle energy per minute for each turret, allowing for 8 rounds per minute from each gun, 13,456 *dinamodi* (43,463 ft. tons).

Notes.

a. As far as the weight of the installations is concerned, it appears from the above that five installations of 6-inch guns correspond (approximately) to eight installations of 4.7-inch guns.

b. The muzzle energy of the 4.7-inch projectile is a little more than one-third of that of the 6-inch projectile, and the difference in energy increases with the increase of the range.

c. If it is desired, with a secondary armament composed of 6-inch guns to keep the weight of the supply of ammunition the same in each case, then, since a round of the 6-inch weighs about twice as much as a round of the 4.7-inch, and ten 6-inch guns (with their turrets) are equivalent in weight to sixteen 4.7-inch (with their turrets), it follows that each 6-inch gun must have four-fifths of the number of rounds which would be allowed to each 4.7-inch gun. Thus the reduction in the supply of ammunition for each 6-inch gun cannot be said to be very marked.

From an examination of this table, the following conclusions are arrived at:—

a. The following advantages would be obtained by having a secondary armament of 6-inch guns mounted in pairs in turrets on a ship whose main armament consists of 12-inch guns:—

1. The possibility of utilising the guns of the secondary armament with effect during a fleet action at medium ranges—a very unlikely, but always possible, contingency.
2. The possibility of using projectiles charged with high explosive during a fleet action at medium ranges—a difficult matter at present with guns of large calibre.
3. Facility in determining the gun range.
4. Greater fire effect at short range against small craft, and at medium range against scouts, destroyers, etc.
5. It would probably be a simpler matter, in preparing the general design of the ship, to mount in suitable positions five or six 6-inch double turrets, rather than eight or ten 4.7-inch double turrets, in spite of the greater dimensions and longer chase of the 6-inch guns.

b. Against these not inconsiderable advantages, proceeding from the adoption of the calibre of 6-inch, the following disadvantages would have to be set:—

1. Diminished rapidity of fire against torpedo craft.
2. Decrease in the number of shell available for each gun, assuming the weight of ammunition carried to remain constant.
3. Reduced distribution of the offensive power of the ship, and consequent greater reduction of this power in the event of partial disablement. (It must, however, be taken into account that, weight for weight, a number of 4.7-inch double turrets presents a larger target than the corresponding 6-inch installations.)
4. Greater wear and tear of the guns.

If the 6-inch gun be adopted for offence against torpedo craft, it should be provided with powerful shrapnel, so charged as to ensure an extensive zone of dispersion, and hence, a good chance of hitting a target; a considerable margin of error should be allowed for in estimating the range during night firing.

Recapitulating the above remarks — if the principal armament of a large ship is composed exclusively of 12-inch guns, it is an open question as to whether it would be advantageous to adopt 6-inch or 4.7-inch guns as a secondary armament, although the evidence appears to be rather in favour of the calibre of 6-inch.

It must not be forgotten, however, that in both the cases under consideration, it would doubtless be necessary to have on board a certain number of small guns (of a calibre not larger

than 2-inch and of very light weight), which could be easily and quickly mounted, so that they might be promptly disposed in the most suitable positions at nightfall, whenever torpedo boat attacks were feared.

III.—Schemes for the Armament of a new Battleship of large Displacement.

The essential features of the main and the anti-torpedo boat armaments, which seem to best meet the modern requirements of large battleships, having been examined, two schemes for the complete armament of an armoured ship of 19,000 tons displacement are given in conclusion. Certainly these schemes make no pretensions to be original of their kind; but they differ from the armament plans of the ships at present building for the principal navies in the adoption of turrets with three 12-inch guns, and in the increased calibre of the guns of the secondary armament.

1st Scheme.—Ship armed with ten 12-inch and twelve 6-inch guns.

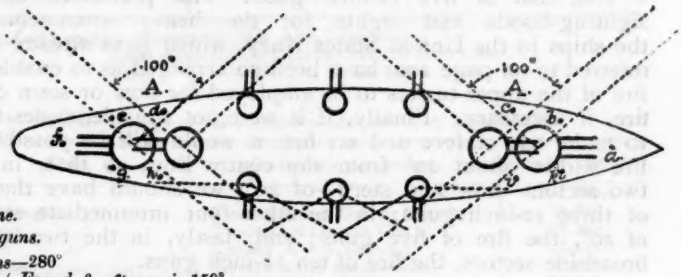
The following conditions, based on the fundamental principles governing the choice of the armament of a modern battleship, are assumed:—

1. That the main armament be composed of the greatest possible number of guns, of uniform calibre, and of high power, so as to obtain the maximum of effect at the greatest possible range.
2. That this armament be disposed in such a way as to enable the fire of all guns to be brought to bear on either broadside.
3. That the gun turrets shall have the greatest possible arcs of fire, so as to ensure extensive effective zones.
4. That the secondary armament should be composed of quick-firing guns, of uniform calibre, effective at medium ranges.
5. That this secondary armament may be capable of being used as a ranging battery, for picking up the range, and for assisting the fire at the commencement of an action, up to the limit of from 6,000-7,000 metres (6,600-7,700 yards).
6. That the new ships, in order to meet modern strategical and tactical requirements, must have a high speed, and, therefore, the weight of armament (including ammunition) must not be allowed to exceed twenty per cent. of the total displacement.
7. That the displacement of the ships in question should not exceed 19,000 tons.

The two schemes of armament, of which diagrams are given on page 207, have been evolved on general lines, embodying,

as far as possible, the above conditions; they will now be examined in greater detail, commencing with the main armament.

Although some naval authorities have already discussed the increase of the calibre of the principal armament from

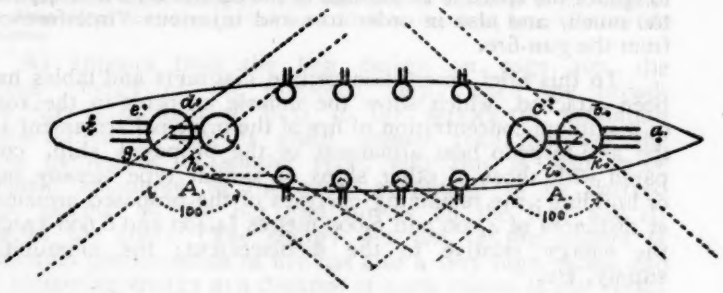


1st Scheme.

10—12″ *guns*, 12—6″ *guns.*

Arcs of fire { 12″ *guns*—280°
6″ *guns* { *Forwd. & after pair* 150°
Midship pair 120°

A = Zone of maximum concentration of fire.



2nd Scheme.

10—12″ *guns*, 16—4·7″ *guns.*

Arcs of fire { 12″ *guns*—280°.
4·7″ *guns* { *Forwd.* 80, *after pair* 150°.
Midship pair 120°.

A = Zone of maximum concentration of fire.

12-inch to about 13.5-inch, the most convenient calibre at present has been assumed to be the 12-inch, so as to avoid reducing the number of guns or the supply of ammunition on the given displacement. If it is desired to arm the new ship with ten 12-inch guns, in order to comply with the *desideratum* expressed at 2. above, a disposition, such as that shown on p. 207, has been adopted, viz.: two turrets with three guns each, and two turrets containing two guns each, the latter being on a higher level than the former. Taking condition 3. into account, each turret has been given an all-round fire of 280°.

In this way the sector of maximum concentration of fire would extend over an angle of 100° on each beam, and in this sector would be concentrated the fire of the *whole* of the principal armament of the ship.

In the remaining sectors of 80° for bow and stern fire, the fire of half the said armament could be brought to bear — viz., that of five 12-inch guns. The protection of the sighting-hoods and sights for the heavy armaments of the ships in the United States Navy, which have already been referred to on page 200, have been so arranged as to enable the fire of the upper turrets to be employed for bow or stern chase fire, if necessary. Finally, if it were not considered desirable to make use of fore and aft fire, it would still be possible to fire within about 20° from the centre line; so that, in the two sectors—bow and stern—of 40°, we should have the fire of three 12-inch guns; in the other four intermediate sectors of 20°, the fire of five guns; and, lastly, in the two ample broadside sectors, the fire of ten 12-inch guns.

We should like to have given the 12-inch turrets an arc of fire of 300°, but we have limited it to 280°, so as not to reduce the space to be allotted to the central 6-inch or 4.7-inch too much, and also in order to avoid injurious "interference" from the gun-fire.

To this brief description certain diagrams and tables have been attached, which show the muzzle energies in the zones of maximum concentration of fire of the principal armament and the anti-torpedo boat armament of the proposed ship, compared with those of other ships of similar type already built or building; the remaining energies of the proposed armament at distances of 4,000 and 6,000 metres (4,400 and 6,600 yards); the energy relative to the displacement; the ammunition supply, etc.

MUZZLE ENERGY IN THE ZONES OF MAXIMUM CONCENTRATION OF FIRE OF THE ARMAMENTS OF CERTAIN MODERN BATTLESHIPS COMPARED WITH THAT OF THE PROPOSED SHIP.

Main Armament.

Ship.	Displacement.	Armament. (Zone of Maximum Concentration of Fire.)	Muzzle Energy.
	Tons.		Foot Tons.
Dreadnought ...	17,900	Eight 305 mm. (12-inch)	396,670
Satsuma	19,200	{ Four 305 mm. (12-inch) ... } { Six 254 mm. (10-inch) ... }	361,456
Danton	17,700	{ Four 305 mm. (12-inch) ... } { Six 240 mm. (9·4-inch) ... }	310,707
Michigan ...	16,000	Eight 305 mm. (12-inch)	330,080
Proposed Ship ...	19,000	Ten 305 mm. (12-inch)	540,056

Muzzle Energy per Ton of Displacement.

Ship.	Displacement.	Muzzle Energy per Ton.
	Tons.	Foot Tons.
Dreadnought	17,900	22·16
Satsuma	19,200	18·83
Danton	17,700	17·57
Michigan	16,000	20·61
Proposed Ship	19,000	28·42

Remaining energy of *proposed Ship* with 10 guns at
6,000 metres (6,560 yards) 242,470 foot tons.
4,000 „ (4,375 „) 310,112 „

Muzzle Energy of the Secondary Armament of same Ships.

Ship.	Secondary Armament.	Muzzle Energy.
		Foot Tons.
Dreadnought	Twenty-seven 76 mm. (3-inch) ...	18,925
Satsuma	Twelve 120 mm. (4·7-inch) ...	25,349
Danton	Sixteen 76 mm. (3-inch)	11,214
Michigan	Thirty-two 76 mm. (3-inch) ...	22,429
Proposed Ship	Twelve 152 mm. (6-inch)	77,908
Proposed Ship	Sixteen 120 mm. (4·7-inch) ...	43,463

NOTE.—The above energies were expressed in *dinamodi* in the original. One *dinamodi* of kinetic energy has been taken to represent approximately 3·23 foot-tons.

As appears from the first design on page 207, the muzzle energy of the proposed ship, when the broadside fire is brought to bear in the sectors of maximum concentration of fire, is much greater than those of the other battleships of similar type; and this is still more eloquent testimony to the great advantage to be derived from placing all the big gun turrets on the fore and aft line of the ship.[1] The energy per ton in the sectors of maximum concentration of fire has also a very high value; and the remaining energy at a distance of 4,000 metres (4,400 yards) is but little less than the muzzle energy of the majority of the other ships considered in our comparison.

With regard to the calibre of the guns of the secondary armament, we have already explained the reasons why guns of higher power than those of 3-inch and 3.9-inch are required at the present day, and we have endeavoured to show the advantages to be obtained by the adoption of the calibre of 6-inch; but, since it must be admitted that the 4.7-inch gun is also a

[1] *Vide* Article by Lieutenant De Feo, in the *Rivista Marittima* for March, 1906. We had intended to consider two secondary armaments, one of 6-inch and another of 4.7-inch guns, of the same weight, *i.e.*, the first of ten 6-inch and the second of sixteen 4.7-inch guns; but in order not to involve ourselves in the by no means easy problem of providing the proposed ship with a two 6-inch gun installation in a central position (so as to be able to fire on both beams), we have considered an even number of installations, and thus an armament of twelve 6-inch guns.

very convenient weapon for the purpose, the same large ship is represented diagramatically in the second design on page 207, armed with an equal number of 12-inch guns, similarly arranged, but with a secondary armament of sixteen 4.7-inch guns in place of the twelve 6-inch in the first design.

With the lesser weight incurred with an armament of 4.7-inch guns, the displacement of the ship might be about 18,500 tons, or else—the displacement of 19,000 tons being maintained—the supply of ammunition might be very considerably augumented.

In both the plans, taking into account the position and general characteristics of the anti-torpedo boat armament, and bearing in mind the necessity of increasing its destructive power at close quarters for bow and stern fire, it has been considered advisable to have ten guns of a calibre not larger than 2-inch that can be placed at nightfall in the positions indicated (approximately) in the figure (at a, b, c, d, etc.), since it will then be necessary to be more effectively protected against attack by torpedo craft. Such guns, which could be readily moved and mounted, should be kept in suitably protected positions during long-range action. The weight of this subsidiary armament, including its ammunition, is very small, as is shown by the following table:—

CALCULATION OF THE WEIGHT OF THE ARMAMENT AND AMMUNITION OF A BATTLESHIP WITH TEN 12-INCH AND TWELVE 6-INCH GUNS.

Weight of the Armament.	Tons.
Two turrets with three 12-inch guns each ...	1,328·00
Two turrets with two 12-inch guns each...	950·00
Six installations of two 6-inch guns each (about)	527·280
Total weight of armament	2,805·280

Weight of Ammunition.	Tons.
305-mm. (12-inch) 46-calibre Gun.—Weight of one round = 552 kg. (1,217 lbs.) Allowing 140 rounds to each gun, the total weight of the 12-inch ammunition supply is	772·800
6-inch 50-calibre Gun.—Weight of one round = 61 kg. (134 lbs.). Allowing 290 rounds to each gun, the total weight of the 6-inch ammunition supply is	212·280
Total weight of ammunition... ...	985·080
Total weight of armament	2,805·280
Total weight of armament and ammunition...	3,790·360

(Displacement of ship = about 19,000 tons.)

THE SAME CALCULATION FOR A SHIP ARMED WITH TEN 12-INCH AND SIXTEEN 4.7-INCH GUNS.

	Tons.
Weight of armament and ammunition for ten 305-mm. (12-inch) 46-calibre guns...	3,050·800
Weight of eight installations of two 4.7-inch 50-calibre guns each	451·904
Weight of ammunition for 4.7-inch guns, allowing 390 rounds for each gun ...	169·728
Total weight of armament and ammunition	3,672·432

(Displacement of ship = about 18,400 tons.)

Weight of subsidiary Armament and Ammunition.

	Tons (approx.)
Weight of ten 47-mm. (3-pr.) guns, with carriages, etc.	10
Weight of ammunition, allowing 1,000 rounds per gun	31
Total weight	41

N.B.—In making the calculations of the ammunition and the energies of the various guns, the charges are assumed to be M.D. cordite.

From this brief description, and bearing in mind the *desiderata* mentioned at the beginning of the same, it appears that the armament of the two large ships proposed, taken as a whole, fulfils, to the greatest possible degree, the conditions imposed by these *desiderata* since:—

1. The primary armament consists of a large number of guns, of high power at modern battle-ranges, and of uniform calibre, which is considered of the greatest importance, for various reasons, of which the principal are, perhaps, the following:—

a. Greater facility in firing and controlling the fire; greater accuracy and increased probability of hitting at long ranges.

b. Greater simplicity in the ship's arrangements for stowage and supply of ammunition.

c. Given a maximum calibre, which must not be exceeded, it is a recognised fact that, for a certain weight of armament, the energy which can be produced by a certain number of guns of the given total weight, becomes less with the reduction of the calibre.

(This is of the greatest importance when considering remaining energies at long ranges.)

2. All the big guns can fire on both broadsides of the ship—a *most important* condition, as it is admitted that broadside fire will be that chiefly employed.

3. The all-round fire, both of the primary and anti-torpedo boat armament, is very extensive, the same having wide zones of maximum destructive power; thus the tactical handling of the ship in order to preserve a continuous concentration of maximum gun-fire on the enemy is facilitated.

4. The secondary armament consists of guns effective at medium ranges, and of great power at short ranges.

5. This secondary armament can also be conveniently used as a ranging battery at ranges of not more than 6,000 metres (6,600 yards). (For this the design No. 1 with 6-inch guns is much to be preferred.)

6. The total weight of the gun armament, with a large supply of ammunition, does not exceed 20 per cent. of the ship's displacement, the maximum allowed us being 19,000 tons.

The advantages of the projected armament for carrying out "battle-practice" will now be examined, the most strict attention being paid to those rules and regulations concerning "improved gunnery," which have now been in force for some time in our Navy.

The fire-control officer, stationed in as central a position as possible, and at a sufficient height above the water-line, has at his disposal an excellent "ranging battery," consisting of six 6-inch guns (or eight 4.7-inch guns), by means of which he can pick up the range with rapidity and certainty. He can use these guns up to a range of some 6,000 metres (6,600 yards), which would not be possible with a secondary armament of 3-inch or 3.9-inch guns. Having obtained a reliable range, and opened fire with the guns of large calibre, he can still continue with 6-inch salvoes, which, with a well-trained *personnel*, may be made to follow each other at short intervals. The general disposition of the guns in question appears to be such as not to interfere with each other's fire in those sectors of maximum destructive power in which firing will generally be employed.

The transmission of orders and ranges, and all the delicate operations in connection with the working of the guns, will be considerably simplified with a limited number of installations in armoured turrets, and this will contribute in no small measure to their reliability and continuity in working.

Lastly, with 6-inch guns (or even with 4.7-inch) it will be possible to discharge projectiles of sufficient bursting charge to produce a column of smoke, of characteristic colour and of sufficient volume to render it easily visible at long ranges, thus facilitating the ready observation of the fall of shot; this will in no small measure lighten the task of the fire-control officer in rapidly determining the range.

THE VON LÖBELL ANNUAL REPORTS ON MILITARY MATTERS IN 1907.

Précis from the German by Lieut.-Colonel E. GUNTER, *p.s.c., late East Lancashire Regiment.*

Concluded from January JOURNAL, 1909, p. 85.

FIELD ENGINEERING IN 1907.

WHEN in 1893 new Field Engineering Manuals were issued in order to keep this branch of military art up to the level of the improvements made in weapons and tactics by both the French and German military authorities, the latter especially threw overboard all complications and artificialities, thus breaking with the old ideas of field-fortification. They taught the necessity of keeping all cover inconspicuous, of numerous shelters, and of adapting the defences to the nature of the ground. They further insisted on every one concerned, from the higher commanders down to the section leaders, being imbued with intelligent skill and handiness in the simple constructions required. It was difficult, however, to overcome the tendency to *shirk the spade*. The shibboleth "killing the spirit of the offensive" so oft repeated, obscured this, and the engineer found it hardly worth while to busy himself with things technically so simple as shelter trenches. Not till the war in the Far East came was any real change effected. Now, the fact can no longer be ignored that entrenched positions will play an important part in future warfare, and that side which neglects this form of applied tactics will suffer. If our (German) infantry have been thoroughly trained to the use of the spade, they will make use of it even in the attack, when needs must, just as the Japanese did.

The new issue of the German Field-Engineering Manual of 1906 omitted many unsuitable rules, and laid further stress on important principles. The French Manual of 1907 followed our example, and as Major Lüning has shown in the *Kriegstechnische Zeitschrift* of the 8th September, 1907, there is but little difference in the forms of entrenchments of European Armies now or in their application.

Major Hoppenstedt's *Der Kampf um befestigte Stellungen*, a work of much merit, shows that more interest is now taken in the technical part of the defence of positions.

Major Fritsch, in a brochure of like title (Berlin, 1908: Liebel), says that engineer officers, encouraged by the engineer and all arms combined operations of General v. d. Gotz, have thrown themselves more heartily into their work, and are determined to insist on their art being taken cognisance of by commanders of all arms of the service. The principle of active defence is inculcated in both the infantry and engineer training manuals, and positions are to be so strengthened that a comparatively small portion of the troops may be required for their defence, and the remainder be available for counter-attack. In the defence of the Russians, the decision to entrench was often come to so late that the enemy came upon them in the act of digging. The trenches should always be finished before the enemy comes in sight, or, at all events, the men should leave off work and prepare to resist the attack directly a hostile cavalry scout is seen to have located the position of the trenches. Though the front line of trenches may be single, those on the flanks and in weak places should be in double lines. Advanced *positions* are not recommended, certain posts in front of the main position which endanger the latter may have to be held. They may also be necessary to compel the assailants' early deployment. Here the Report goes into the well-known cases when and where counter-attack should be made, which are not new. Obstacles, etc., are also shortly discussed.

Major Fritsch shows the necessity of increasing the strength of engineers in every attacking force, as well as for the defence, and is of opinion that each infantry division in first line should have 2 companies of engineers † with it to destroy obstacles, open the way to the assaulting troops, strengthen ground gained, etc. This is proved by the Russo-Japanese War. The Japanese divisions had 3 companies of field engineers, yet these had to be strengthened by men attached from the infantry. Examples from the Russian side are also quoted.

Military Bridging.—The Russians found in the war with Japan that though their engineers managed their bridging train well enough, yet when it came to bridging expedients they were deficient in readiness of resource. The strength of improvised bridges and the skill of engineers in making them are now required to be greater because the weight of carriages, especially those of heavy guns with an army, is increased. Military bridging is now on a different footing, and requires higher training. In April, 1906, a company of German engineers made a bridge over the Rhine at Strassburg, for the transport of heavy field howitzers, which was 164 feet long, and about 11 feet above the water, out of unprepared material, within 7½ hours.

The wish expressed in Austria to have a lighter bridge equipment has not been fulfilled. It was a failure. On the

†A Company of Pioneers (Field-Engineers) in the German Army is about 217 strong.—E.G.

other hand, Herbert's cavalry light bridging material, alluded to in the Report for 1905, has been taken into use in the Austrian Army. This cavalry light bridging train, which some cavalry regiments have, consists of eight 4-horsed wagons, which furnish sufficient material for a bridge 113 feet long. The cavalry pioneers now have to go through a course of five months' training at the Engineer Battalion School.

In France a new light bridging equipment is spoken of, designed by Captain Barault, of the Génie. This is composed of fir planks, etc., and light iron parts. It weighs 90 kilogrammes (about 1 ct. 3 qrs.) per metre (3.28 feet) run. A 3-horsed carriage carries 15 metres length of bridge, or 1 mule carries 1 metre length. 15 to 20 unskilled men can construct 20 metres length of bridge in an hour. The *Behelfsbrücken-Vorschrift*, 1907, published by A. Bath, of Berlin, gives details of all bridging expedients that have been proposed or tried of late years for the passage of streams.

PERMANENT FORTIFICATION, 1907.

The Report for 1907 contains a long chapter by Lieut.-Colonel Frobenius, in which he draws attention to the publications of Lieut.-Colonels v. Schwarz and Barmin, of the Russian engineers, detailing the defensive works executed by them at Port Arthur, its condition before and during the siege, especially during August, when the assault took place. Lieut.-Colonel Frobenius emphasises the importance of the latest reports now available regarding the siege of Port Arthur, from the establishment of the first siege batteries,† and draws inferences from these as to the future conduct of sieges. It was known that this fortress was far behind European fortresses in its design and construction, and in the condition of its defences; but the actual state of the latter at the beginning of the siege came as a surprise to most people. There is no space here to follow the writer in all this. For details the Report itself, which gives the titles, dates, etc., of the pamphlets and publications referred to, must be consulted.

PROGRESS OF PERMANENT FORTIFICATION IN INDIVIDUAL STATES, 1907.

Belgium.—The Report has little to bring to notice as to the new project for the defence of Antwerp beyond that noted last year.†† The new enciente was decided on. It is to include the inner line of forts Nos. 1 to 8; the intervals between these are to be closed by iron palisading and strengthened by two or three redoubts of permanent construction. This line cuts through many large and valuable properties of certain rich

† Port Arthur was invested by General Nogi on the 31st July, 1904.

†† See the JOURNAL, December, 1907, pp. 1511-12.—E.G.

citizens of Antwerp. The ground would therefore be very expensive for the Government to purchase. It is probable that it would be difficult to obtain even a moderately extensive field of fire, and that great difficulties would be raised against any proposed arming of the works.†

Denmark.—A National Defence League of Danish Women has been formed, and already numbers 10,000, in order to further the efforts of the members of the Land Defences Commission, as it is questionable whether the representatives of the people will sanction the proposals of the Commission without pressure.

France.—Experts are far from being united in their views as to the modernising of Verdun and other fortresses on the Eastern frontier. On the one hand it is urged that concrete and armoured plating are a necessity; on the other, that Mezières is much more important, as it commands the "*Trouée de Chimay*" and the "*Porte des Chiers,*" in case the neutrality of Belgium should be violated. It is thought that Mezières, Toul, and Belfort should be made first-class fortresses, and that then Montmédy, Verdun, and Epinal might be taken into consideration. Meanwhile certain old fortresses, especially those on the Spanish frontier, are looked on as superfluous, and may be dismantled.

In Paris they have begun the levelling of the ramparts, though at first only a small portion west of the St. Denis road has been taken in hand. The public will not give more than 64 million francs out of the 94 millions demanded by the Finance Minister for the levelling of another portion. The whole business will only be accomplished bit by bit.

Germany. — While the ramparts of Deutz (Cologne) are ordered to be razed and the Forts Ranet No. 14 and 15 dismantled, the outer circle of forts round Metz are, according to French accounts, to be strengthened by works on the right bank of the Moselle.

A large sum of money was included in the Budget for 1908-09 for the fortifications of Heligoland and the enlargement of its harbours.

Great Britain.—The Report notices certain complaints in a military paper that England is deficient in coast defences, and that as every nation possesses torpedo-boats which can attack unprotected harbours, ships and docks, though inferior in battle-ships and armament, Q.F. guns of heavy calibre must be provided to protect harbours and anchorages. *Le France Militaire* justifies the expenditure on Rosyth as a naval base, and says that 125 millions is to be spent on the works, which will be finished by 1915.

United States.—President Roosevelt's message to Congress brought forward the following proposals for the defence of the

†The half-finished and unarmed works in Metz in 1870 will be called to mind.—E.G.

entrance to Chesapeake Bay between Cape Charles and Cape Henry, which is 4½ miles wide: An artificial island is to be constructed, protected by a breakwater, and here and on the above-named promontories are to be mounted eight 13.8-inch, two 11.8-inch, four 9.8-inch guns, as well as seventeen guns of smaller calibre, and sixteen 11.8-inch mortars. The eastern entrance to Long Island Sound is to be strengthened by four 13.8-inch guns, six 11.8-inch guns, and sixteen 11.8-inch mortars. The entrance to Puget Sound† is to be strengthened by a second line of forts about 17 miles behind the three forts at the northern end of Admiralty inlet, between Foul-weather Bluff and Double-Bluff. It is to have seven 13.8-inch guns, two 11.8-inch guns, eleven guns of smaller calibre, and eight 11.8-inch mortars mounted. The fortifications at Diamond Head, Hawaii, have been already commenced. The following works are also said to be ordered: San Juan (Porto Rico), Luzon (Philippines), four 11.8-inch guns, eight 11.8-inch mortars; the entrance to Manila (Philippines), eight 13.8-inch guns, two 11.8-inch guns, and eight heavy mortars; Pearl Harbour (Honolulu), six guns and sixteen mortars (11.8-inch). The Kiska Island and the Panama Canal, eight guns and thirty-two mortars (11.8-inch).

ARTILLERY *MATÉRIEL* IN 1907.

The progress of dirigible air-ships in 1907 led to a demand for artillery to combat these. The Ehrhardt 5-cm. (1.97-inch) field gun, designed for this purpose, which was mentioned in last year's Report,†† was to be provided with 100 shrapnel shell of 3.3 lbs. weight, containing 128 bullets of hardened lead 8 grammes (4½ drachms) each, and 27 pieces of hardened lead of 9 grammes (about 5 drachms) each; bursting charge, 1.13 oz. The elevation was from + 70° to — 50°, the lateral deviation 60°. Rate of the automobile carriage about 28 miles an hour, carrying gun ammunition, small stores, and a gun detachment of 5 men. Krupp has also designed a gun for this purpose, of which details were given in the *Militär-Wochenblatt* of the 11th March, 1907. It is a 6.5-cm. (2.56-inch) barrel-recoiling gun. No details of trials are to hand. In Germany the Heavy Artillery are also being made barrel-recoiling.

ARTILLERY *MATÉRIEL* IN PARTICULAR STATES.

Bulgaria.—The re-armament of the Field Artillery with Schneider-Creusot barrel-recoiling field guns proceeded but slowly in 1907, so that it was not completed by the contract period, 1st July.§ The ammunition is especially behind hand. The new Roupp 2.95-inch mountain gun, L/14, was sketched

† In Washington, W., nearly opposite Victoria, Vancouver.—E.G.

††See the JOURNAL for December, 1907, p. 1513.—E.G.

§See the JOURNAL for December, 1906, p. 1492.—E.G.

in the December, 1906, No. of the *Internationale Revue*. These were to be issued to the Mounted Infantry, but the Schneider-Creusot copies of this pattern exceeded the prescribed weight.

France.—The Report gives details of the 65-mm. (2.46-inch) barrel-recoiling mountain gun, describing the system by which the recoil and break are much shortened. It is not known if this gun has already been introduced. It is said to require six horses or mules if shields are taken, or five without.

It is intended to arm 120 Heavy Batteries with Major Rimailho's 15.5-cm. (6.1-inch) howitzers.† Each battery is to have only two of these. Its length of barrel is 6 feet 2 inches; weight of heavy shell, 94.6 lbs. (melinite, 28.6 lbs.); weight of gun and carriage unlimbered, 62¾ cwt.; weight of gun carriage and limber, each 47 cwt.; greatest range, 6,000 metres. The Siege Artillery is now divided into 4 Artillery Parks. Each Park has 3 sections, each of 60 guns. These are sub-divided into 15 batteries of 4 guns each. The Artillery Park consists of 18 155-mm. (6-inch) long guns, 18 120-mm. (4-inch) long guns, 18 95-mm. (3¾-inch) guns, 90 155-mm. (6-inch) short guns, and 36 220-mm. (8.6-inch) mortars. There are also some 270-mm. (10.6-inch) mortars not yet distributed.

Germany.—The change of the field guns into barrel-recoiling guns is now completed. It is not known if the light Field howitzers are to be transformed. The Garrison Artillery has been armed within the last year with two modern barrel-recoiling guns, the heavy field howitzer of 1902 and the 10-cm. (3.94-inch) guns of 1904, for both high-angle and direct fire, which should be allotted to both Heavy Artillery of the Field Army and to the Siege Train.††

Great Britain.—Complaints are made of the want of stability of the new 18-pounders and 13-pounders, and the wheels are said to be weak. Some of the old 15-pounders are to be converted to barrel-recoiling guns to be handed over to the Volunteers to use up the large supplies of ammunition on hand. The old Ehrhardt field guns, which were bought during the Boer War, are to be distributed among the coaling stations as moveable armament.

The Report enumerates the various patterns of mountain guns in the British Colonies and in India. It says all, including the 10-pounder mountain gun, are out of date, the latter because of its old de Bange breech action, etc. It was not a success in Thibet, and the report that a new Q.F. mountain gun is on trial seems probably true.

In artillery journals views are again voiced that a new and more powerful field howitzer is required to cope with the

† See the JOURNAL for December, 1907, p. 1514, for some details.—E.G.

††*Errata.*—In the table published with the Report for 1906, JOURNAL for December, 1907, p. 1515, for Germany Field Howitzer '98, calibre 40.9-inch, *read* 4.13-inch; shrapnel muzzle velocity 9,938, *read* 1,082 f.s. Germany Field Howitzer '02, calibre 8.8-inch, *read* 5.9-inch; shrapnel muzzle velocity, *read* 1.069 f.s.

German F.H. '02 (5.9-inch) and the French Rimailho (6.1-inch). It is rumoured that a new 27.2-cm. (10.7-inch) siege howitzer is on trial. The calibre of all guns mounted in our fortresses, both on sea and land fronts, is given. It is said that the manufacture of guns at Kossiput in India is at present a failure.

Japan.—The re-armament of the Field Artillery with the new Krupp barrel-recoiling 7.5-cm. (2.95-inch) Meidji 38 gun is now completed. As a result of their recent war experience the Japanese have adopted the wedge breech system instead of the screw. Experiments are being carried out with a new 16.5-cm. (4.13-inch) light field howitzer of General Arisaki's design. Many Mountain Batteries have been reduced or converted. Only nine remain out of those which took part in the war, and these have the F.A. gun. Heavy Artillery batteries are being formed partly, those for the Field Army being organised in two Brigades of two or three Regiments of six Batteries each, the Batteries having four guns. The remainder will be Fortress Artillery. At present they are armed with 12-cm. (4.7-inch) and 15-cm. (6.1-inch) howitzers of the old pattern.

Roumania.—Roumania has now completed its re-armament with the Krupp 7.5-cm. (2.95-inch) barrel-recoiling field guns, which give great satisfaction. The Roumanian gunners are highly trained.

Russia.—Russia has made considerable progress with the re-armament of the Field Artillery with the new pattern barrel-recoiling shielded field gun of 1902, calibre 7.62-cm. (3-inch). The weight of the gun is 7 cwt. 3 qrs. 6 lbs., length of barrel, 7 feet 6 inches; height fired over, 3 feet 7 inches; weight of shrapnel, 14½ lbs., bursting charge, 3½ oz.; muzzle velocity, 1,930 f.s.

The 1904 Q.F. mountain gun is of 7.5-cm. (2.95-inch) calibre, and carries a 14½ lbs. common shell, and weighs about 2 cwt. only. Its range is about 4,000 metres.

SMALL ARMS IN 1907.

All important military Powers, following the example of France and Germany, carried out experiments with pointed bullets and improved smokeless powder in the year under review. In most States a bullet with a core of hardened lead and an envelope of steel has been adopted, enabling the weight to be lessened. England has retained a bullet as heavy as before, but apparently of pure nickel. The new bullets give better ballistic results, so the tendency to obtain these by lessening the calibre is not so apparent. The adoption of automatic rifles has been delayed by the improved bullet and powder, thus relieving the Powers from the expense of complete re-armament. Experiments with automatic rifles are, however, being quietly carried on everywhere, in view to the adoption of a serviceable weapon directly any great European

Power sets the example. The introduction of the pointed bullet has saved much theorising, and even if automatic rifles are adopted, a bullet of similar construction will be used.

Austria-Hungary.—A pointed bullet similar to the French one has been experimented with. It is lighter than the old round-headed one, so more ammunition can be carried.

A new automatic pistol (M. Roth II.) has been introduced superseding the old revolver.

Belgium.—Trials are being carried on with different kinds of pointed bullets at long range at the Beverloo Camp. The 12-gramme (10 2-5 drachms), fired with a muzzle velocity of 2,327 f.s., penetrates fir 2 feet 7½ inches; the 10 gramme (10 4-5 drachms), with a muzzle velocity of 2,810 f.s., 2 feet 11 inches, at 200 metres distance in each case, as against about 2 feet with a round-headed bullet.

Germany.—The *Deutsche Waffenzeitung*, of 25th July, 1907, described an automatic indicator for magazine rifles, by which the firer can tell at a glance how many rounds are in his rifle. It can be attached to any rifle.

A new automatic pistol called the "Dreyse, 1907," has been patented by the *Rheinische Metallwaren und Machinen Fabrik Gesellschaft*, in Sömmerda. Its calibre is 7.65-mm. (.301-inch). Major-General Wille described it fully in a brochure (Berlin, 1907). The new S. Geschoss (pointed bullet) has done good service in S.W. Africa.

A new short-distance range-finder for infantry, pattern 1906, has been issued.

Great Britain.—The experiments with pointed bullets and new powder for the infantry rifle have been concluded, though the new cartridges are not yet issued. The weight of the bullet is as before, 13.8 grammes. It looks like nickel. The muzzle velocity with this was increased to about 770 metres (2,525 f.s.). Kynoch Bros. have given much assistance in its manufacture.

Italy.—Major-Cei Rigotti has placed his automatic rifle at the disposal of the Government. With its magazine holding 25 rounds it increases the rate of fire 2½ times. As regards waste of ammunition, the magazine need not be attached to the rifle until the command "rapid fire" is given. The magazine can, however, be made to contain from 6 to 25 rounds as required. A company has been formed in Milan for the sale of the patents. These are applicable to new rifles of any pattern. It is simply an improved method of loading. It would make the rifle more durable. The weight is but very slightly increased.

Japan.—There is no truth in the report that Japan has adopted an automatic rifle or increased the calibre of theirs. It is simply an improved Arisaka rifle of the same calibre, called Meidji 38, 1905.

Switzerland.—Experiments are being made in the cartridge factory at Thun with a new bullet for the Swiss rifle, pattern

89/96. It is said to give ballistic results far surpassing those with the present, *e.g.*, the point-blank range is extended to 600 metres, the muzzle velocity being 800 metres (2,624 f.s.). The magazine, which now contains 12 rounds, is to have 6 only.

United States.—The Militia of all the States are to be armed with the new Springfield rifle. The experiments with a new pointed bullet have been successfully carried out. With a muzzle velocity of 2,800 f.s., the point-blank and total range, and the accuracy of the rifle are increased.

Machine Guns.—The Report has a long chapter on Machine Guns, to which it says all Continental nations are now paying special attention. It classifies the different systems in use, and describes them briefly. In Germany, Switzerland, and Austria, it says, the Maxim system is not in favour, and of late it is also but little used in France or the United States, where a new *Rexagewehr*, weighing only 7½ lbs., and firing 300 rounds a minute, is preferred. This is said to be of especial use with cavalry, etc.

The Report allows that the rate of fire of the Maxim is greater than that of any other system (500 to 600 shots a minute). Its weight has now been reduced to 36 lbs. 5 oz.

The Madsen Machine Gun only weighs 15½ lbs., and so can be carried by a mounted man on his horse or by one man on foot.

The German *Scwarzlosegewehr* is praised, but no details of it are given. It is being adopted in the Austrian Army.

MILITARY COMMUNICATIONS, 1907.

Part II. includes a full and interesting account of the progress in air-ships, balloons, photography, etc., which is well worth perusal. It deals naturally at greater length with the Zeppelin and Parseval experiments. The former on the rigid system, the latter on the so-called "flexible" system. The necessity for air-ships keeping out of the range of modern artillery is pointed out in view of the improvements being made in Q.F. guns firing with high elevation. The experience of the French in Morocco is cited, balloon reconnaissance having materially contributed to their success. The success of German balloons in the International race at Brussels and in the United States is recounted with satisfaction.

The organisation of Balloon Detachments in Bulgaria, France, Germany, Great Britain and Japan is briefly touched on. The Report goes into many details of speed and duration of flight of various kinds of air-ships. It attributes the loss of "La Patrie" (semi-rigid) to the failure of its motor. It deprecates the idea of air-ships fighting against one another, but expects great results from improved reconnaissance, photographs in favourable weather, etc. The necessity for a special motor air-ship corps, when the applicability of air-ships to military purposes and their suitable construction is arrived at, is pointed

out. It says, seven semi-rigid Lebaudy air-ships were ordered to be constructed in France, and recounts the disaster to "La Patrie" in detail. It mentions the apparent failure of the British "Nulli Secundus" in October, 1907.†

The Report describes the excellent system of Field-Telegraphs spread over German South-West Africa, and of the progress in "Wireless" or Aerial Telegraphy, Poulsen Waves, etc.††

Part II. has also in it a short chapter on Sanitary matters, by Dr. Körting, and a summary of the "Geneva Convention" of 1906, revising some of the previous provisions. It concludes with an exhaustive list of books, brochures, etc., published in Germany and other countries in 1907, from which it is impossible even to make extracts for want of space.

PART III.

This part of the Report is interesting, entering as it does in some detail into the experiences of the German Colonial Forces in South-West Africa against Simon Copper and Morenga, in German East Africa, in the Cameroons, and in German New Guinea. It also contains, as usual, obituary notices of distinguished military men who died during the year. There is no space left to deal with this part, but especial attention may be drawn to the notice of Colonel BARON STOFFEL, whose name as the Military Attaché in Berlin, who warned the French Cabinet in vain of the superiority of the German Army prior to 1870, is well known to our officers. Born as far back as 1823 in French Switzerland, he served in the Crimea in 1854 and in Italy in 1859. His military dictionary and his studies of Cæsar's Gallic wars attracted the notice of the Emperor Napoleon III., who, recognising his great talents, had him appointed to Berlin, where his knowledge of the German language as well as his military foresight made his services most valuable. As is well known, he was looked upon as a Cassandra when his early celebrated reports came to hand. They were ignored, some even being found unopened in the Tuileries by the Government of National Defence. He served during the war from June, 1870, on the staff of the Emperor Napoleon III. He was an ardent Bonapartist, so was retired by Thiers in 1872. He wrote "The Civil Wars of Cæsar," etc. He was in favour of a Franco-German Alliance. This talented and industrious soldier died in Paris on the 4th April, 1907.

---

†A full description of the three classes of air-ships is given in tabular form, but a similar form will be found on p. 1662 of the JOURNAL for December, 1908, in a translation from the *Marine Rundschau* for July.—E.G.

†† See also Dr. Maguire's letter on "The Poulsen Wave," on p. 282 of the JOURNAL for February, 1908.

THE USE OF THE SKI, OR SKEE, IN FOREIGN ARMIES.

Translated by permission of the Minister of War from the *Revue Militaire des Armées Etrangères.*

THE ski, or skee, which had its origin in Scandinavian countries permits the user to glide over great stretches of snow without sinking so deeply as to hamper his progress materially. Its construction is such as to allow as rapid a movement over the surface as with a skate on ice.

The Norwegian ski of Telemarken which is considered one of the best, is a wooden runner of tough wood, some eight feet long, three to four inches in breadth, one inch in thickness at the centre under the foot, and bevelling off to about a quarter of an inch at either end. In front it is curved upwards and pointed. Skis are secured by means of straps, one to each foot, which rests on the raised centre, the straps being secured in such a way that they can easily be cast off in case of accident.

We may draw a brief comparison here between the ski and snow-shoe, pointing out the respective advantages and disadvantages of each.

The best form of snow-shoe is the Canadian, originally taken from the Indian model. It is a contracted oval in front and pointed behind, is from three to five feet long, and from one to two feet wide, the foot being fastened on the widest part of the shoe by means of thongs, and so as to leave the heel free. It has a light rim of tough wood, on which is woven from side to side a web of raw hide. With the Canadian snow-shoe a rate of speed of from 7 to 8 kilometres (4½ to 5 miles) an hour can be maintained. The snow-shoe costs almost nothing, it is easily kept in repair, and is quite simple to use. The method adopted for attaching it to the foot is of little importance; there is no need of special foot-gear, ordinary boots are quite suitable. There is nothing to prevent a man from carrying the regulation haversack. A body of men on snow-shoes can without trouble preserve its formation; twenty men on snow-shoes at the head of a company are sufficient to open a track that all the other soldiers can use with advantage.

The ski costs a good deal more. It requires care to make and to keep in repair; it wants constant attention, and its use demands special instruction that only strong and active men can properly take full advantage of. The mode of fasten-

ing the ski to the foot is, perhaps, the most delicate problem to solve, for anyone who wishes to make the best use of it without danger. A skier is hampered in his movements by carrying the regulation filled haversack. A troop of skiers must keep at such a distance apart that close order cannot be maintained, and this entails a considerable lengthening of the column. Lastly, the ski only leaves on the snow an insignificant mark, which the men following on foot cannot utilise.

With the ski, however, especially when going down hill, a rate of speed of 10 kilometres (6 miles) an hour can be maintained.

It is evidence that both skis and snow-shoes can be turned to great use by soldiers who are obliged to march in hilly country in winter time. Skiers (in small numbers), on account of the difficulties of its use and the special instruction required, are best employed in scouting and reconnaissance for the columns on march, and also for keeping touch with the neighbouring columns. Men on snow-shoes will be an advanced guard; they will be charged with the duty of looking after the safety of the column, and will open the road necessary for its march.

The use of the ski, concurrently with that of the snow-shoe, has spread for some years past, and tends to develop itself in the armies of those Powers whose troops are called upon to operate in mountainous country.

In France our Alpine troops use both skis and snow shoes; a normal school for skiing exists at Briançon.

The military use of the ski is to be found in Norway, Sweden, Russia, Germany, Austria-Hungary, Switzerland, and the United States.

We give here some information on the use of the ski in the different foreign armies mentioned above, recalling, when there is occasion, and in order to render intelligible the particular methods of instruction of the troops, the principles on which the organisation of some of these armies rest.

Norway.

In the eighteenth and beginning of the 19th centuries, we find in Norway several battalions of skiers. These units ceased to exist towards 1825, and the use of the ski became rare in Norway. But people were not slow to perceive the inconvenience caused by the loss of this valuable means of locomotion, and the civil and military authorities busied themselves in concert to promoting the revival of the sport of skiing.

On the 15th May, 1861, the Central Union of the Development of Sports, "in particular sports useful for national defence," was founded. In 1863, General Wergeland published his regulations for the practice of skiers. In 1867, ski races were organised at Christiania and renewed successfully in the following years. In 1883, the Society for the Development of the Sport of Skiing was founded; in 1892, this Society

organised, for the first time, the Grand Derby, now permanent, of Hobmenkollen.

To-day everybody in Norway practises, more or less continuously, the sport of skiing; it has become a national sport.

Recent statistics show that at Christiana, 61 per cent. of the boys of the primary schools, and 29 per cent. of the girls, have skis. In the district of Bratsberg, the Federation of Skiers of Telemarken has 24 associations and 1,400 members; the Society of Christiania also has 1,400 members. Finally, the Sports Union, the central federation of the societies for the development of physical exercises and of musketry practice, has more than 36,000 members, of whom a large number are devoted to the ski.

It would appear, therefore, that most of the military recruits join their regiment already familiar with the use of this appliance; the *rôle* of the army consists, then, chiefly in demanding of the skiers the use of the ski for military purposes. Being given the length of military service in Norway, it would, moreover, be impossible to do more. As a matter of fact the term of military service in Norway is very short: 48 days in the infantry and fortress artillery, 92 days in the field artillery, and 102 days in the cavalry.

The Norwegian authorities have judged it indispensable to develop as much as possible, before entry into the service, the physical education of the future recruits, in order that they may be able to stand without danger a progressive military training. This duty has been confided to the Federation of the Sports Union; the Government allots to the Federation annual subsidies, of which the amount increases year by year; in 1908, the Federation received 188,000 crowns (£10,457) for musketry practice; 8,700 crowns (£484) for gymnastics; 15,000 crowns (£835) for other sports, the greater part of this last subsidy being absorbed by the grants to the Ski Societies.

When one studies the use of the ski in the Norwegian Army, it becomes difficult to separate the task of the Army from that of the Union, the one and the other working in common for the development of the young men called on to protect the national territory. The Sports Union gives the Army its financial support by the experiments it carries out for the effective employment of the ski. It organises meetings and ski races, in which every soldier can take part by virtue of his position.

The Norwegian Army in winter has very few troops on service; there are only under arms at this season the Schools for Non-commissioned Officers and the Company of the Guard. These units: 1. Carry out ski racing, and organise military competitions, financially subsidised by the Sports Union; 2. Make experiments, with the object of determining in a rational manner the best equipment, clothing, sleeping arrangements, and food for a troop of skiers, during a winter campaign; 3. Carry out winter manœuvres with skis.

The military organisation regulations has provided for two companies of cyclist skiers, who represent the skiing element

properly so-called. As these two companies are called on to serve during the fine season, equally as during winter, they must be provided with bicycles or skis. Up to the present they have only once been called out during winter, and that was in 1904, for a period of 30 days. The next calling out for winter manœuvres with skis is to take place in 1909.

Each of these companies has an effective of five officers, one of whom is a doctor, fourteen non-commissioned officers, and 115 soldiers. The skis employed in the Norwegian Army are of the Telemarken model, made of ash, sometimes of American walnut wood; they are purchased and repaired in the trade. The haversack, suppressed some ten years ago in the Army, is replaced by a Tyrolean linen bag.

In the Norwegian Army there is no particular regulation relative to instruction in the use of the ski, but special pains are taken to instruct the skier in scouting and patrol service. He is taught to read maps rapidly, and to find his way about in the country. In addition, every manœuvre with skis is almost always concluded with firing practice.

The following is the programme carried out by the Northern Ski Company, when called out in 1904:—

1. Individual instruction (races down inclines, marches across different kinds of country, through woods, jumping, etc.);
2. Practical instruction in packing and bivouacking (construction of snow huts, and shelters by means of tent-canvas or from branches) — Field works (snow entrenchments);
3. Map instruction, use of the surveyor's compass, rifle instruction, the use, keeping in order, and small repairs of skis;
4. Drill and firing, field service;
5. The period terminated by a five days' practice march: 1st and 2nd days:—Marches and bivouacs. 3rd and 4th days:—Manœuvres against the Trondhjem Non-commissioned Officers' School; a piece of artillery being placed at the disposal of the company. 5th day:—National ski competition of the Trondhjem Club.

This account of the use of the ski in the Norwegian Army would be incomplete if we neglected to note the numerous expeditions made each winter in this army by small groups of Volunteers, led by young officers, specialists in the use of the ski. Each expedition, each reconnaissance, gives opportunity for a report, in which all give their own personal observations and their views on the employment of the ski. Numerous reports have thus been received, some of which appear to have been of an extremely interesting character.

Clothing.—A cloth guernsey and a canvas vest are the clothes which give the most heat, but the guernsey ought to

fit close round the neck and the waist, in order to avoid chills on the stomach. The fur cap is very hot for marching, a cloth cap coming over the ears is preferable.

Boots ought to have a certain roominess at the toes; flannel buskins covering the foot-wear prevent it from becoming stiff and prevent the freezing of the feet.

Mufflers are good; one from three and a half feet long and eighteen to twenty inches wide is recommended. The Skier ought to wear socks. A pack of 11 kilogrammes (24 lbs.) is not too heavy. Long narrow straps are always useful to carry.

Care of the Ski.—The skis ought to be constantly coated with stearine. The Huitfeld strap is the most sure; the Laplandish straps are good, but they ought always to be tarred.

Nourishment, etc.—The food of the skier ought to be fatty (bacon, sausages, etc.). In order to prevent the contents of the canteen from freezing, it is important that it should be placed in the pack amongst the woollen clothes. It is advisable to carry bismuth and lanoline pomade for rubbing on the face, with court plaster to dress raw places. In case of a member becoming frost-bitten, to re-establish circulation the member should be kept vertical and friction applied with an oily substance. To guard against sunstroke, the face should be rubbed over with soot or burnt cork mixed with oil or grease.

SWEDEN.

After having used the ski in the wars at the beginning of the 19th century, Sweden allowed this sport to fall into disuse until 1892, the date when the Society for the Development of Skiing was founded. Since then more than 200 societies have been organised, and appear to prosper, without, however, having reached the stage of development attained by the Norwegian societies. This is due partly to the nature of the country. Whilst in Norway almost everywhere skiing can be carried on in winter, Sweden for this purpose may be divided into two regions, separated the one from the other by the river Dale. To the south of the river there is generally only a slight snowfall, and even when snow does come it is often not heavy. The other region, called "Norrland," to the north of the river, offers, on the other hand, from October to June, very good country for skiers, particularly so from April to the end of May. Whilst the southern part of the country contains more than four million inhabitants, there are scarcely more than a million in the north, and the intercourse between the two is not very close. Hence there are difficulties in keeping up close relations and exciting emulation between the ski societies which are organised.

However that may be, Sweden, through Norrland, is bounded both by Norway and Finland, and from the military point of view can never forget that her possible adversaries

would find there a theatre of operations particularly suitable for the employment of the ski.

Instruction in the use of the ski has not hitherto undergone important development, and this is not surprising if it is recalled that quite recently Sweden had only a very short term for military service, and that this service took place during the summer in camps of instruction.

The law of 1901 organised the permanent Army with, in principle, a one-year service. But as a matter of fact, the infantry recruits, the fortress artillery, and the engineers only have 150 days of active service (from 1st of April to end of August); the cavalry and field artillery serve actually for a year; their recruits are called out in November and can consequently carry out winter exercises.

In addition, a certain number of infantry units are also under arms during the cold season; these are: officers, about 30 from each regiment; the non-commissioned officers' courses, 20 from each regiment; the squads of lance-corporals, about 120 from each regiment; and lastly, the schools of volunteer recruits, an average of 120 per regiment. The non-commissioned officers' courses begin each year at the beginning of October; the other courses on the 1st November.

Although the different bodies of the men on service during the winter are in a good position for exercising with the ski; nothing serious has been attempted in this direction up to the present. The volunteer schools of the 6th Division (Gäfle, Ostersund, and Härnosänd), as well as those of the Boden district, certainly practise with the ski; the cavalry and field artillery exercise a part of their effective; finally, the troops of the Stockholm garrison (Guard regiments) also exercise individually with the ski, and when there is sufficient snow, even carry out garrison manœuvres.

But if the truth must be known, it is only a period of ideas and trials. It is right, however, to note, as pointing to the development of the use of the ski in the Army: 1. The General Order of the 26th April, 1905, which lays down that "volunteer recruits are, when circumstances permit, to learn, while recruits, to use the ski." 2. The order of the 8th January, 1907, which grants to the commandant of the 6th Division 1,200 crowns (£65) annually, available by economies in the war budget, in order to encourage the sport of the ski and organise military competitions.

This sum of 1,200 crowns has been allotted between the different regiments of the army corps, and in each is to be apportioned in three parts: first, prizes for officers and non-commissioned officers; second, prizes for soldiers; and thirdly, to pay the expenses of the organisation of competitions.

The tests are to be, for officers and non-commissioned officers, a course of orientation over a distance of from 25 to 40 kilometres (15 to 25 miles); for soldiers, a speed race for 40 kilometres (25 miles).

It is only just to admit that the Swedish Army has given to the National Ski Societies their best leaders, officers in many cases being the presidents or very active members of the societies. Soldiers of all ranks take part, sometimes alone, sometimes in bodies in the competitions organised by the societies.

Lastly, the greater part of the competitions tend to develop as much as possible the taste for exercises useful for military purposes, such as individual firing competitions on skis and firing at different ranges at silhouette targets, écheloned the length of a course of 4 to 6 kilometres (2½ to 3¾ miles). Despatch carrying competitions, over a distance, on an average, of at least 150 kilometres (93 miles); long-distance races and orientation races over unknown country.

(To be continued.)

NAVAL NOTES.

Home. The following are the principal appointments which have been made: Captains—A. W. Ewart to "Ramillies"; B. H. Barttelot to "Blenheim"; Guy A. Gaunt to "Andromeda"; R. A. Hopwood to "Grafton"; G. B. Hutton to "Repulse"; The Hon. H. G. Brand, M.V.O., to "Good Hope"; A. L. Cay to "Euryalus"; H. W. Savory, M.V.O., to "Impregnable"; E. M. Phillpotts to "Prince of Wales"; H. J. Savill to "Jupiter."

The first-class battle-ship *Hibernia*, flag-ship of Vice-Admiral Sir A. B. Milne, K.C.V.O., Second-in-Command of the Channel Fleet, paid off at Devonport on the 5th ult. on completion of her two years' commission, and re-commissioned on the following day for a further term of service in the Channel Fleet. The first-class battle-ship *Implacable* commissioned at Chatham on the 2nd inst. to replace the *Venerable*, a sister-ship, in the Channel Fleet; the *Venerable* paid off at Chatham on the previous day, and her ship's company turned over to the *Implacable*.

The "Neptune."—The new first-class battle-ship *Neptune* was officially commenced at Portsmouth on the 19th ult., and as much material has been collected in readiness, her construction should now proceed rapidly. The new ship will be an improvement not only on the *Dreadnought*, but also on the *St. Vincent* class. Her dimensions are, it is stated, to be as follows: Length, 510 feet; beam, 86 feet; displacement, 20,000 tons (about), and her speed is to be 21 knots. Her armament will be the same as earlier vessels of the type, viz., ten 12-inch guns, mounted in pairs in barbettes—one forward, two astern, and one on either bow. The inner after turret is to be raised so that the guns will fire over the top of the extreme stern turret, which will give an additional stern fire of two guns more than the earlier vessels of the class. The anti-torpedo armament will consist of a new type of 4·7-inch guns.

Health of the Navy for 1907.—The returns for the total force for the year 1907 show a still further improvement on the satisfactory report of last year, and the average loss of service for each person has dropped to 10·46 days.

In this year's return, comparisons when possible are made with the average ratio for the last five years instead of for a longer period.

The total force, corrected for time, in the year 1907, was 108,740, and the total number of cases of disease and injury entered on the sick list was 75,351, which is in the ratio of 692·94 per 1,000, showing a decrease of 85·23 per 1,000, as compared with the average ratio of the last five years.

The number of entries per man for disease and injuries was: On the Home Station, ·66; Channel, ·57; Atlantic, ·66; Mediterranean, ·68; North America and West Indies, with Fourth Cruiser Squadron, ·96;

Home.

China, ·98; East Indies, 1·03; Australia, ·85; Cape of Good Hope, ·71; and Irregular List, ·97. For the total force the average is ·69—a fractional decrease on last year's figures.

The average number of men sick daily was 3,118·4, giving a ratio of 28·67 per 1,000—a decrease of 3·52 per 1,000 in comparison with the last five years' ratio. The total number of days' sickness on board and in hospital was 1,138,219, which represents an average loss of service of 10·46 for each person, which is a decrease of 1·29 in comparison with the average for the last five years.

The ratio per 1,000 of men sick daily on the various stations was: On the Home Station, 30·44; Channel, 22·17; Atlantic, 24·51; Mediterranean, 25·22; North America and West Indies, with Fourth Cruiser Squadron, 28·49; China, 33·34; East Indies, 30·08; Australia, 31·36; Cape of Good Hope, 25·57; and Irregular List, 48·40. As was the case during the last two years, the Channel shows the lowest and the Irregular List the highest, sick rate.

The average number of men sick daily under the different diseases will be found in the Medical Statistical Returns of the total force, Table No. 1.

The total number of persons invalided was 2,322,[1] which gives a ratio of 21·35 per 1,000, showing a decrease of 3·18 per 1,000 in comparison with the average ratio for the last five years. Of the above total, 1,963 persons were finally invalided from the Service (as shown for the first time in these reports on Table No. 1 of the total force), of whom 62 were invalided after refusing operative treatment (*see* page 91). The ratio per 1,000 of final invalids was 18·05, or 84·53 per cent. of the total number invalided, thus showing an increase of 1·12 per 1,000 when contrasted with the average for the last five years. This increase is largely due to the increased ratio under syphilis secondary.

Of the 2,322 temporarily invalided, 2,153, giving a ratio of 19·79 per 1,000, were invalided for disease, and 169, a ratio of 1·55 per 1,000, for injury.

For the invaliding ratios for the several stations, *see* Medical Statistical Returns of the Total Force, Table No. 3.

In addition to the information given in Tables 1 and 3, a separate table, which includes invalids from marine headquarters, will be found at pages 12 and 13, giving particulars as to age and length of service of all officers and men finally invalided out of the Service.

It will be noticed that in comparison with 1906, Home Station, Channel, East Indies, Australia, Cape of Good Hope, and Irregular List show an increased temporary invaliding ratio, while Atlantic, Mediterranean, North America and West Indies and China show a decreased ratio.

The total number of deaths was 365, giving a ratio of 3·35 per 1,000, showing a decrease of 1·05 in comparison with the average ratio for the last five years. Of this number, 246, or 2·26 per 1,000, were due to disease, and 119, a ratio of 1·09 per 1,000, to injury.

---

[1]This number includes men temporarily invalided from foreign stations, many of whom are again able to join the active force. The number finally invalided represents the waste of the Service from this cause during the year.

Home. The ratios of death from disease and injuries on the several stations will be found in the Medical Statistical Returns of the Total Force, Table No. 3.

In comparison with the death ratios for 1906, the returns from China, Australia, and Irregular List show an increased ratio, from Home Station, Channel, Atlantic, Mediterranean, North America and West Indies, East Indies, and Cape of Good Hope a decreased ratio.

A Table (No. 4) will be found in the Medical Statistical Returns of the Total Force showing the ratios per 1,000 of force of all classes of disease and injury entered on the sick list, as well as of the invaliding and mortality from the different classes of disease and injury on the various stations during the year under review.

General.—The war-ships, exclusive of torpedo-boats and submarines, launched during the year 1908, with their tonnage, I.H.P., and estimated speed, were as follows :—

Great Britain. — First-class battle-ships : *St. Vincent, Collingwood,* both of 19,250 tons, 24,500-I.H.P., and 21 knots speed. Third-class cruiser : *Boadicea,* 3,400 tons, 18,000-I.H.P., and 25 knots speed. Destroyers : *Amazon, Saracen,* 880 tons, 15,500-I.H.P., and 33 knots speed.

Austria-Hungary.—First-class battle-ships : *Erzherzog Franz Ferdinand,* 14,600 tons, 20,000-I.H.P., and 20 knots speed.

Brazil.—First-class battle-ship : *Minas Gereas,* 20,000 tons, 25,500-I.H.P., and 21 knots speed.

Denmark.—Coast-defence battle-ship : *Peder Skram,* 3,680 tons, 4,600-I.H.P., and 15·5 knots.

France.—Frst-class armoured cruiser : *Waldeck-Rousseau,* 14,000 tons, 36,000-I.H.P., and 23 knots speed. Destroyers : *Glaive, Poignard, Chasseur, Hussard, Voltigeur, Spahi,* 450 tons, 6,800-I.H.P., and 28 knots speed.

Germany.—First-class battle-ships: *Nassau, Westphalen, Rheinland, Posen,* 18,000 tons, I.H.P. and speed not published. First-class armoured cruiser : *Blücher,* 15,000 tons, I.H.P. and speed not published. Third-class cruisers : *Emden, Kolberg,* 4,300 tons, 20,000-I.H.P., and 25 knots speed. Destroyers : twelve, six of 680 tons, six of 616 tons, 10,250-I.H.P., and 30 knots speed.

Italy.—First-class cruisers : *San Giorgio, Amalfi,* 9,800 tons, 19,000 I.H.P., and 22·5 knots speed. Destroyers : *Calypso, Climene,* 375 tons, 6,000-I.H.P., and 29 knots speed.

Japan—Third-class cruiser : *Moyami,* 1,350 tons, 8,000-I.H.P., and 23 knots speed. Destroyers : 32 under construction, but number launched during 1908 not known.

United States.—First-class battle-ships : *South Carolina, Michigan,* 17,900 tons, 16,500-I.H.P., and 18·5 knots speed ; *North Dakota,* 20,000 tons, 25,000-I.H.P., and 21 knots speed.

The total tonnage of the war-ships, including torpedo-vessels and submarines, launched for each country during 1908 is as follows: Germany, 97,660 tons; United States, 52,850 tons; Great Britain, 49,560 tons; Italy, 29,400 tons, France, 21,600 tons; Russia, 8,800 tons; Japan, 2,245 tons; other Powers, 47,574 tons, making a total of 127 ships, with a displacement altogether of 309,689 tons.

France. The following are the principal promotions and appointments which have been made: Vice-Admiral—J. A. Philibert to be Member of the Superior Council of the Navy, and Inspector-General of Torpedo-vessels and Submarines. Rear-Admirals—J. M. Neny to be Member of the Superior Council of the Navy; L. J. Pivet to Command of Light Division of Mediterranean Fleet. Capitaines de Vaisseau—E. E. Nicol to be Chief of the Staff to Vice-Admiral de Fauque de Jonquières; M. J. De la Croix de Castries and A. V. Adam to be Rear-Admirals; C. F. Didelot to "Patrie"; C. S. Bousiceaux to "Jules Ferry"; F. O. Le Cannellier to "Jauréguiberry." Capitaines de Frégate—R. M. Morin de la Rivière, F. G. Pigeon de Saint-Païr, E. L. Terquem to be Capitaines de Vaisseau; P. A. Jehenne to be Chief of the Staff to Rear-Admiral Pivet; E. P. Lesquivit to "Flamberge"; G. M. De Faramond de Lafajole to "Mousqueton."—*Journal Officiel de la République Française.*

General.—Vice-Admiral De Jonquières hoisted his flag on the 5th ult. at Toulon on board the first-class battle-ship *Patrie* on assuming command of the Mediterranean Fleet. He has selected Capitaine de Vaisseau Nicol, lately in command of the *Jauréguiberry*, as his Chief of the Staff.

Rear-Admiral Auvert hoisted his flag on the 16th ult. at Brest on board the first-class armoured cruiser *Marseillaise*, in command of the 2nd Division of the Squadron of the North.

Rear-Admiral Pivet has been selected for the command of the Light or Scouting Division of the Mediterranean Fleet, in succession to Rear-Admiral Krantz, who died on the 14th ult. at the Naval Hospital, Toulon, as the result of an operation he had to submit to for an internal complaint from which he suffered. The death of Rear-Admiral Krantz is much regretted, as he was extremely popular, besides having a high professional reputation; he stood first on the list for promotion to Vice-Admiral, which step he would have received in a very short time, when the very unusual spectacle for the French Navy would have been presented of a father and son both holding Vice-Admiral's rank. His father is in his 88th year, and became a Vice-Admiral on the 1st December, 1877.

A recent decree states that on account of the increasing importance of target practice, and with a view to encourage good gunnery, the shooting prizes at the School of Gunnery are increased from 3,500 francs (£140) to 5,400 francs (£216) for each four months' period of instruction. The prizes allowed during the rifle course are also increased from 4,000 francs (£160) to 8,000 francs (£320).

The Minister of Marine has approved of plans for widening the entrance to the basin Napoleon III. at Cherbourg Arsenal, and for lengthening No. 5 dock 65 metres (213 feet), which will, when completed, give the dock a total length of 200 metres (656 feet). The estimated cost of these alterations is 1,530,000 francs (£61,200). The lengthening of No. 5 dock will necessitate the throwing down of part of the outside wall of the arsenal and the demolition of certain buildings, among them the old military chapel now used as a museum by the *Infanterie Coloniale.*

It is said that at Toulon certain officers of the Mediterranean Fleet had opened a subscription to present Admiral Germinet on his departure

France. with a sword of honour, but that the Minister of Marine had intervened, and the idea had to be abandoned.

Eight torpedo-boats, from 25 to 15 years old, Nos. 62, 103, 126, 169, 198, 66, 160, *Zouave*, and two destroyers, *Vautour* and *Wattignies*, have been advertised for sale.

Launch of the "Voltaire."—The *Voltaire*, the first of the new French 18,000-ton battle-ships to take the water, was launched on the 16th ult. from the La Seyne Yard of the *Société des Forges et Chantiers de la Méditerranée*, near Toulon. The actual displacement of these ships is 18,350 tons, and all six of the group are to have four sets of Parsons' turbine engines, developing 22,500-I.H.P., to give a speed of 20 knots; in addition there are two smaller turbines for cruising purposes. It was at first proposed to fit turbine engines in only two of these ships, but M. Thomson, the late Minister of Marine, threw his weight into the scales in favour of the turbines, and the hesitation of the Admiralty officials to make the experiment of the new system on so large a scale was consequently overcome.

Having decided on the necessity of building these ships, the French Government are to be congratulated on having taken the wise step of laying down a group of six simultaneously, with the result that in 1911 they will have a completely homogeneous squadron of the new type completed for sea, for the ships are absolutely identical in displacement, boiler capacity, speed, armour and armament. Of the other five ships, the *Danton* and *Mirabeau* are being built in the Government yards at Brest and Lorient respectively; the *Diderot* and *Condorat* at St. Nazaire, in the *Chantiers de la Loire* and the *Chantiers de Penhoët* respectively; while the *Vergniaud* is under construction by the *Chantiers de la Gironde*, Bordeaux. The ships are to have straight stems, the ram being suppressed, while the huge superstructures which have been so marked a feature in earlier French battle-ships have also been done away with as far as possible. The dimensions of the ships are: Length, 475 feet 7 inches; beam, 84 feet, with a draught of water of 27 feet 6 inches. The armament will consist of four 50-calibre 12-inch guns in pairs in turrets fore and aft, twelve 50-calibre 9·4-inch guns in pairs in six turrets, with sixteen 12-pounder and eight 3-pounder automatic guns, and two submerged torpedo-tubes. The magazines are larger than usual, and the supply of ammunition will be eighty rounds per gun for the 12-inch guns instead of sixty, with one hundred and ten rounds for the 9·4-inch guns, instead of eight-five. Protection will be afforded by a 10-inch complete water-line belt, tapering to 7·8 inches at the extremities, extending from 5 feet 3 inches below to 7 feet 10 inches above the water-line. The main turrets will be protected by 11·8-inch and the secondary by 8·7-inch armour, that for the conning-tower being 11·8-inch. For protection against torpedoes there is an armoured caisson running right round the ship from immediately below the armour belt, which it is hoped will localise the effects of any torpedo which may be exploded against the side. This armoured caisson was first fitted by the La Seyne firm to the Russian battle-ship *Tsarevitch*, which was constructed by them.—*Le Yacht*, *La Vie Maritime*, and *Le Temps*.

France. *The Charcot Antarctic Expedition.* — On the 15th August the Charcot Expedition left Havre in the *Bourquoi-Pas* for the Antarctic. It is hardly necessary to say much as to the importance now attached to antarctic exploration. If we glance at a map of the Polar regions we find in the North that the Arctic Ocean is well furnished with lands and seas whose configuration is now fairly well known. Though the North Pole has not yet been reached, the memorable voyage of Nansen has nevertheless revealed to us the nature of its surroundings. Thanks to the celebrated Norwegian explorer, we know that beyond Spitzbergen, Nova Zembla, Greenland, and the islands of New Siberia extends a vast ocean covered with pack-ice, and that the imaginary point of the North Pole lies in the midst of this ice-bound sea. But the map of the South Polar regions is quite different. An immense blank space envelopes the South Pole, and we know nothing, or almost nothing, of the nature of what lies therein. All the expeditions that have tried to push their way towards the extreme south have been stopped by a grim line of coast completely covered with glaciers, and so it is believed that, contrary to what prevails in the north, the South Pole is surrounded by a vast continent far larger than the whole of Europe.

Let us suppose that in our hemisphere our knowledge of the Arctic stopped short at the White Sea, the north of Irkoutsk, Behrings Straits, and the northern part of Hudson's Bay. We should then have an equivalent, as far as the latitude is concerned, to our knowledge of the mysterious Antarctic. At one point only, on the meridian of New Zealand, has this unknown region been penetrated. In Victoria Land, to the south of this island, Captain Scott, of the English Navy, in 1902, succeeded in reaching 82° S., a parallel of latitude corresponding to the north of Spitzbergen in our hemisphere, or 900 kilometres (563 miles) distant from the South Pole. Everywhere else at the commencement of this twentieth century our knowledge of the Antarctic is no greater than that possessed by the navigators of the sixteenth century.

These being the present conditions, every country with any pretension to scientific culture looks upon it as a duty to undertake the exploration of this White Continent. Seven years ago a concerted commencement was made by England, Germany, Scotland, Sweden, and France, which latter, thanks to the initiative of Charcot, associated with the other countries in this great enterprise. On reaching home, the intrepid explorers had but one thought—that of returning again as soon as possible to continue their explorations, and their heroic fight with the pack-ice in the interests of science. The English were the first ready, and a British expedition, the advance guard of two other supporting parties, is already at work in Victoria Land. Charcot is about to commence his explorations to the southward of Cape Horn. The choice of this field of action was forced on our compatriot by the traditions of our Navy. It was in this part of the Antarctic, south of the southern point of America, that Dumont d'Urville carried out in 1838 his celebrated explorations. Fighting hard against the pack-ice with two sailing vessels quite unfitted for such work, this illustrious sailor succeeded in determining the eastern limit of this complex land by discovering Louis Philippe Land and Joinville Island. Sixty-eight years later, retracing the route so gloriously

France.

opened up by Dumont d'Urville, Charcot, in his former expedition in the *Français*, discovered in his turn Loubet Land, the prolongation of this fragment of the Polar continent towards the west.

Thus, to French sailors belongs the honour of having reconnoitred the chief lines of this part of the Antarctic. In continuance of this work, the new French expedition will proceed, in the first place, to Loubet Land, thence coasting along it will endeavour to reach Alexander I. Land, situated farther south, and which hitherto has been but vaguely charted; then, if the pack-ice permits, a S.W. course will be shaped, so as to determine the southern limit of the eastern part of the Pacific Ocean, and join up with the English discoveries to the south of New Zealand. Is the eastern part of the South Pacific Ocean separated from the South Pole by a continent or by islands, or does it extend still farther south? This is the important geographical problem which Charcot and his companions hope to solve.

The programme of the expedition includes wintering in the neighbourhood of Alexander I. Land, and from the winter station a party will explore the interior by means of motor-sledges. The reader must not receive this statement with a smile of incredulity. In certain parts of the Antarctic the glaciers form immense flat plains, and in 1902 Scott, of the English expedition, who holds the record for farthest south, traversed 450 kilometres (280 miles) without accident on a sheet of ice almost perfectly level, and as soon as his return had made this known, the most experienced explorers sought how to apply the motor principle to the exploration of this region. The English expedition now in Victoria Land is already provided with motor-sledges, and Charcot has taken several with him, having experimented with them last winter in the Alps with most astonishing success; and if our compatriots have the good fortune to meet a fairly level glacier surface they will undoubtedly go far towards the pole. In any case, Arctic explorers—men who themselves have painfully made long journeys over the ice, not arm-chair geographers—are persuaded that it is only by means of the motor-sledge that the South Pole will ever be reached, though the discovery of the North Pole may be reserved to the dirigible. In this respect the trials to be made by Charcot are of first-rate importance, and will supply the best information regarding this new mode of Arctic locomotion, and several explorers are now awaiting his return before completing their final preparations.

An expedition such as this of Charcot is not undertaken solely for the purpose of determining the contours of the coast line and filling up the blank spaces in the chart, but has also to collect scientific information of all kinds, both physical and natural, bearing on such subjects as meteorology, terrestrial magnetism, zoology, geology, botany, etc. These researches are not, as some may think, devoid of practical interest; meteorological observations, for instance, can alone supply us with the key to the circulation of the atmosphere round the Antarctic continent—a matter of great practical value to sailing vessels making long-distance passages round the Cape of Good Hope and Cape Horn and anxious to adopt the most favourable route as regards winds and sea. In charge of all these technical studies Charcot has with him a staff of young savants. M. Gourdon, geologist; M. Jacques Liouville, zoologist; M. Gain, botanist;

France. a physician, M. Senonque; and finally, as bacteriologist, the head of the expedition himself. There are also three naval sub-lieutenants, who, besides their ordinary watch-keeping duties, will be charged with astronomical and meteorological observations.

An immense and varied field is open to the activities of these valiant explorers, though the difficulties are great and the dangers considerable. Severe storms will certainly be encountered, and on this southern ocean, unbroken by any land, the waves and seas run mountains high, and tossed about on its surface icebergs 30 and 40 metres (98 to 131 feet) high and from one to two kilometres long will be met. Woe to the vessel that collides with one of these floating reefs, for she will most certainly go to the bottom. In these stormy waters also few or no anchorages are likely to be found where a vessel can take shelter and refit or pass the winter in security. As far as is known everywhere the coast line is one of tremendous cliffs covered with ice. Loubet Land, towards which Charcot is proceeding, has a forbidding aspect, which does not in any way correspond with the amiability of the late President of the Republic; it is described as a wall of glaciers rising perpendicularly from the sea.

But what adds more than anything else to the difficulties of Antarctic exploration is the rigour of the climate—much colder than the corresponding zone in the north. In latitudes where in the northern hemisphere cereal crops mature and dense forests cover the land, the Antarctic is but a sheet of ice, and vegetation is represented by a few lichens and mosses. In this part of our globe eternal winter reigns, and according to Nordenskjold, the summer which he passed in the Antarctic was colder than the most severe winter in Sweden, and a temperature of one or two degrees above zero (33° to 34° F.) is quite unusual and phenomenal. During the two years the English expedition spent in Victoria Land only on three or four occasions was so high a temperature noted, and in winter it is a case of 40 or 50 degrees of cold, accompanied by terrific blizzards which turn day into night and blind and stifle the unfortunate traveller who may be caught by one of these atmospheric convulsions.

Over all these difficulties Charcot and his companions will be sure to triumph, and in two years they may be expected to bring back a fecund harvest of scientific *data*, adding a new and glorious page to the history of the French Navy.—*Le Temps.*

Germany. The following are the principal promotions and appointments which have been made: Rear-Admirals — Coerper to be Vice-Admiral; Ingenohl to Command of Cruiser Squadron in China; Merten to Command of the Fortress of Wilhelmshaven; Grapow to be second Admiral in First Squadron; Dick to be Superintendent of Wilhelmshaven Dockyard. Captains—Grapow, Schack, Schröder, Dick, Prowe to be Rear-Admirals; Hebbinghaus to "Zähringen"; Tapken to "Yorck."

The Kaiser's Challenge Cups for Prize Firing.—The Imperial Challenge Cups for the best heavy gun results at the annual prize firing have been awarded to the battle-ships *Mecklenburg* and *Lothringen*, for the High

Germany. Sea Fleet; to the first-class armoured cruiser *Yorck* and the small cruiser *Danzig*, for the Scouting Division. The prize for heavy gun firing for the Coast Artillery has been awarded to the 1st Section of Marine Artillery at Friedrichsort.

Presents for the Battle-ship "Schleswig-Holstein."—The Province of Schleswig-Holstein, which of all German territory is in closest connection with the Navy, has come forward in the most liberal manner in the matter of making presents to the battle-ship bearing its name, and which has recently entered on active service. The Provincial Landtag has voted a sum of 10,000 marks (£500) for a portrait of Her Imperial Majesty the Kaiserin, to which is also to be added a complete library for the crew; the Schleswig-Holstein nobility a service of silver plate; the provincial branch of the Navy League a sum of 1,400 marks (£70) for prizes for the athletic sports of the crew; the Schleswig-Holstein Club, established in Berlin during the last thirty years, a piece of silver plate for the officers' mess; and finally, a number of Kiel gentlemen a present of books.

The High Sea Fleet has been now reconstituted as follows:—Flag-ship of the Commander-in-Chief, H.R.H. Prince Henry of Prussia, first-class battle-ship *Deutschland* (2nd Squadron).

1st Squadron.—Vice-Admiral von Holtzendorff, Commanding.

1st Division.	Distinguishing Mark on Funnel.	*2nd Division.*	Distinguishing Mark on Funnel.
First-class Battle-ships—		First-class Battle-ships—	
Hannover ... ... (Flag-ship of Commander-in-Chief).	1 White Band.	*Wittelsbach* ... ... (Flag-ship of Rear-Admiral Ingenohl).	1 Red Band.
Schlesien	2 White Bands.	*Wettin*	2 Red Bands.
Mecklenburg ...	3 „	*Kaiser Karl der Grosse*	3 „
Zähringen	4 „	*Kaiser Barbarossa* ...	4 „
		Despatch-vessel—*Blitz*	1 White Band.

2nd Squadron.—Vice-Admiral Schröder, Commanding.

3rd Division.	*4th Division.*
First-class Battle-ships—	First-class Battle-ships—
Preussen ... ... 1 Yellow Band. (Flag-ship of Commander-in-Chief).	*Braunschweig* .. 1 Blue Band. (Flag-ship of Rear-Admiral Guhler).
Schleswig-Holstein... 2 Yellow Bands.	*Lothringen* ... ... 2 Blue Bands.
Hessen ... ... 3 „	*Pommern* ... ... 3 „
Elsass ... ... 4 „	Despatch-vessel—*Pfeil* 1 Yellow Band.

Scouting Division.—Rear-Admiral von Heeringen, Commanding.

1st Group.	*2nd Group.*
First-class Armoured Cruisers—	First-class Armoured Cruisers—
Scharnhorst ... ... 1 White Band. (Flag-ship of Commander-in-Chief).	*Roon*... ... ... 1 Red Band. (Flag-ship of Rear-Admiral Jacobsen).
Gneisenau ... .. 2 White Bands.	*Yorck* ... ... 2 Red Bands.
Second-class Cruisers—	Second-class Cruisers—
Danzig ... ... 3 „	*Berlin* ... ... 3 „
Königsberg ... ... 4 „	*Lübeck* ... ... 4 „
Dresden ... ... 5 „	*Stettin* .. ... 5 „

Germany. Under the new organisation of the fleet, the first-class battle-ship *Hannover* has been transferred from the Second to the First Squadron and become the flag-ship of Vice-Admiral von Holtzendorff, commanding the First Squadron, whose previous flag-ship, the *Wittelsbach*, becomes the flag-ship of the Rear-Admiral commanding the 2nd Division of the Squadron. All three flag-ships of the High Sea Fleet, the *Deutschland*, flag-ship of the Commander-in-Chief, the *Hannover*, and the *Preussen*, are now vessels of 13,200 tons, and the second squadron is composed exclusively of ships of this tonnage and is a completely homogeneous squadron. The First Squadron, on the other hand, includes two ships of 11,150 tons, four of 11,800, and two of 13,250 tons displacement; and while the Second Squadron carries twenty-eight 11-inch guns, the First Squadron only carries eight 11-inch guns, with twenty-four 9·4-inch guns.

Launches.—The new first-class battle-ship Ersazt *Baden* was launched from Krupp's Germania Yard at Kiel on the 12th December, 1908, and received the name of *Posen*. She is the fourth ship for the German Navy of the so-called *Dreadnought* type to take the water during the past year, the other three being the *Nassau*, launched on the 7th of March; the *Westphalen*, on the 1st of August; and the *Rheinland*, on the 26th of September. All that is known definitely about this group of vessels is that they will have a displacement of 18,000 tons, but no other reliable details as to their armour, armament, H.P., and speed have been allowed to leak out.

It is believed that the next group of four, viz., the Ersatz *Beowulf*, Ersatz *Siegfried*, Ersatz *Oldenburg*, and Ersatz *Baden*, will be larger than their predecessors, as the first vote for these ships, which appeared in last year's Estimates, amounted to £275,000 per ship, as against a vote of only £150,000 per ship for the earlier vessels of the type.

The small cruiser Ersatz *Greif* was launched from the Schichau Yard, Danzig, on the 14th of November, and received the name of *Kolberg*. She is a vessel of 4,300 tons displacement, with turbine engines to develop 20,000-I.H.P., and give a speed of 25·5 knots. The armament will consist of twelve 40-calibre 4·1-inch Q.F. guns, with four 55-calibre 2-inch guns, and two submerged torpedo-tubes. There will be an armoured deck two inches thick tapering to ·8-inch, and the conning-tower will be protected by 4-inch armour.

On the 23rd ult. was launched from the Vulcan Yard, Stettin, the Ersatz *Jagd*, a sister-ship to the *Kolberg*. She received the name of *Mainz;* was commenced in 1907, and is to be completed this year. Like the *Kolberg*, she is to have turbine engines.

On the 29th December was launched from the Germania Yard, Kiel, the Destroyer "G169," which is the first of the five vessels of the flotilla of twelve provided under the Estimates of last year building at this yard to take the water. Four other boats of this series are under construction by the Schichau Firm, Elbing, and three at the Vulcan Yard, Stettin. These destroyers are to have a displacement of 616 tons, but details as to their armament, speed and H.P. are not forthcoming. Five of the boats are to be fitted with Curtis turbines, three with Zoelly turbines, and the other four with Parsons.

Germany.

New Ships.—The contract for the river gun-boat "C" has been awarded to the Tecklenborg firm at Geestemünde, and all the ships of this year's programme are now in hand. The gun-boat, which is intended for service on the rivers in China, is to be ready by next summer, when she will be transported in sections to Shanghai, where she will be again put together. The first-class armoured cruiser "G," the contract for the construction of which was recently given the firm of Blohm and Voss, Hamburg, is to be fitted with turbine engines on the Parsons' system.

It should be noted that each new series of ships laid down now for the German Navy marks fresh progress, both from the point of view of displacement, power and speed. Thus, the tonnage of the new small cruisers laid down under the programme of 1908 is to be increased from the 4,300 tons of their two predecessors to 4,500, while their turbine engines are to develop 30,000-I.H.P., to give a speed of 27 knots, as against the 20,000-I.HP. and 25 knots of their two predecessors.

Similarly the new destroyers are, it is reported, to have turbine engines developing 14,000-I.H.P., giving a speed of 35 knots, as against the 11,000 and 32·5 knots of their immediate predecessors. These details, however, have not yet been officially confirmed.

Carrier Pigeons.—The German Colombophile Societies have recently held at Frankfort a congress at which the Navy was represented. The meeting considered that in spite of new inventions, carrier pigeons will still prove extremely useful in time of war. The Navy maintains pigeon establishments at Danzig, Cuxhaven, Wilhelmshaven, and Heligoland, the centre of the organisation being at Friedrichsort, close to Kiel. For some years past each year there have been many trials with them from the fleet when at sea; this year some thousand pigeons will take part.

Trial of New Destroyer.—The new destroyer "V161," built at the Vulcan Yard, has completed her trials successfully. She is the last of the flotilla of 12 vessels ordered under the 1907 programme to be completed, and at her full-speed trial attained a maximum speed of 32·14 knots, the mean speed of the remaining eleven being 31·5 knots. All the vessels of this series have a displacement of 680 tons, and are all fitted with Curtis turbines to develop 10,000-I.H.P., the contract speed being for 31 knots.

Floating Docks for Destroyers.—The Howaldt Firm at Kiel has completed two floating docks for destroyers, which have been towed to Wilhelmshaven, where they are to be stationed. These docks are 269 feet long, with a lifting capacity of 1,400 tons, which will enable two destroyers to be docked at the same time. Owing to the bad weather which prevailed, some difficulty was experienced in towing the second dock from Cuxhaven to Wilhelmshaven.

Torpedo Divisions.—Since the addition during the summer of a 5th Company to the two torpedo divisions, a new half-flotilla (six boats) has been formed from the 1st of last December, so that there are now

Germany. ten half-flotillas, five in Kiel and Wilhelmshaven respectively. Out of these, during the next training year, two school flotillas, two Reserve flotillas, and a manœuvre flotilla will be formed. With the exception of the 2nd Reserve Flotilla, of which one half-flotilla is stationed at Kiel and the other at Wilhelmshaven, all the flotillas are now composed of large boats (what are generally termed destroyers).

Coaling Times in the High Sea Fleet.—The best record per hour during the past year for coaling out of lighters by the High Sea Fleet is as follows:—1st Squadron: The *Kaiser Wilhelm der Grosse*, 383 tons, and the *Wittelsbach*, 332 tons. 2nd Squadron: The *Elsass*, 328 tons, and the *Hessen*, 324. Among the large cruisers the *Yorck* took in 435 tons (the best record of the whole fleet), the *Roon* following with 331. Of the small cruisers, which wheeled the coal on board in barrows from the land, the *Lübeck* took in 260 tons, while the *Hamburg*, with a crew of 172 men all told, took in 525 tons in two hours and a quarter, the average per head in the best hour's working being 1·7 tons.—*Marine Rundschau*, *Kreuz Zeitung*, and *Revue Maritime*.

United States. *Admiral Converse's Defence of the Navy (concluded)*:—

Belt Armour Distribution. Defence Against Torpedoes.

Much of the criticism which has been made in regard to the distribution of the belt armour of vessels of our Navy seems to be based upon the assumption that vessels will always strive to go into action at their deep-load draught. Many of the most distinguished and experienced officers of our own and foreign navies still hold the opinion, expressed in 1896 by that board of distinguished officers of which the late Rear-Admiral John G. Walker was president, that "the fighting draught of a battle-ship would not be her maximum draught with all the ammunition, coal and stores that she can carry, and that the position of the armour belt should bear its proper relation to this actual loadline; not to a fictitious loadline seldom realised in Service conditions."

One of the principal causes of the defeat of the Russian fleet in the battle of Tsushima Straits, in May, 1905, is attributed to the fact that the vessels of that fleet were overloaded with coal and stores of all kinds. On the other hand, it is stated on reliable authority that the Japanese fleet, in anticipation of meeting the Russian fleet, had been completely stripped by removing everything possible in the way of weight (equipment, superfluous stores, etc.) from the vessels, and that they had on board at the time of the battle provisions sufficient to last only ten days. It may be reasonably assumed that because of their lightness these vessels were near what we would call "their normal draught." Togo's fleet was in fighting trim; Rodjestvensky's fleet was not. The result could easily have been forecast. Still, the critics of our Navy would have us believe that ships should always, as a precaution for battle, put themselves in the condition of those that met defeat.

There is reason for belief that in some instances commanding officers have, by filling or emptying the trimming tanks, the shifting of weights,

United States.

the use of coal exclusively from forward bunkers or other perfectly legitimate means so trimmed their respective ships that they are down (when loaded) from one and a half to two or more feet by the stern. This depression of trimming by the stern, of course, causes a light depression on the after end of the narrowed down armour belt, and in some instances it may be true that the extreme after end of this belt has been thereby submerged or awash, but a corresponding rise of armour necessarily follows from the extreme stern to the extreme bow. This condition of trimming by the stern is an entirely personal preference of the commanding officer of the individual ship and may be due to the possibility of the ship's steaming or handling easier in squadron, but it is hardly at all probable that she will be trimmed thus in time of war or preparatory to going into action. Even if so trimmed the main armour belt, that is, the part protecting the vitals—the primary reason for its existence—would be still well above water and in no instance would it be submerged.

It is possible that persons unfamiliar with battle-ships may take the top of the painted (usually red) water-line "boot-topping" as representing the upper limit of armour belt. This, however, cannot be taken as a proper guide, as the position of the water-line is variable, at times being possibly two feet or more below the armour belt, and may have no relation or connection with its actual position. It is, therefore, readily seen how easily incorrect ideas of the height of the armour belt above water may be formed if judged from the position of the painted water-line.

It is gravely proposed by these critics to bring the ship back to its deep-load draught (and thus submerge the belt to its proper depth) by the admission of water to the double bottom. Were this theory carried out in our large ships of recent design the amount of water necessary to accomplish the results would be approximately two thousand tons, but the structure of the ship will not permit of so large an amount being admitted to the double bottom.

The five-inch gun is now considered the smallest calibre effective for defence against torpedo attacks. All our battle-ships now carry intermediate batteries of five-inch or larger calibre, and those vessels still having three- and six-pounders on board are to have them replaced by guns of larger calibre as soon as the heavier guns can be provided. In the meanwhile our vessels are by no means unprovided to beat off hostile attacks of torpedo-boats, as it is a well-known fact that the intermediate batteries of rapid or Q.F. guns carried by our ships are amply able to meet the necessity, and, on the whole, are also more numerous than are carried by battle-ships of other navies, or approximately the same time of design.

Automobile Torpedo—Leeward Gun Fire.

On the subject of the "automobile" torpedo the report says: "Criticisms have been frequently made of the fact that a few of our large vessels are not fitted with automobile torpedoes, and at the present time it is recognised that the absence of these torpedoes is somewhat of a dis-

United States.

advantage. It may be stated that our policy of temporarily abandoning the torpedo for battle-ships and armoured cruisers when it failed to keep pace with what was considered battle-range for guns, and again taking it up when improvements made it once more a useful and effective weapon within the battle range, was not different from the policy pursued by foreign navies. Since our last cruisers and battle-ships not fitted with torpedoes were designed the effective range of the torpedo has undergone a great increase, and it is now claimed to be efficient up to 4,000 yards. This improvement has rendered them again a weapon to be reckoned with, and consequently we readopted them, and all our large vessels designed since this improvement carry torpedoes."

As to wind and leeward gun-fire the report says: "It is doubtful if any captain would select the leeward position, and particularly if there were any sea running, as most probably would be the case. Modern gunpowder gives out little, if any smoke, and, therefore, the great advantage claimed by the critic above referred to fails; but instead, the leeward ship has the greater and more important disadvantage of the smoke from his antagonist's funnels and of flying spray and moisture obscuring the glass of the telescopes, which will seriously interfere with the aiming and firing of the guns. The question of the direction of the sun is also one of much importance, and if it be a case of choice of windward position with the sun at his back or leeward position with the sun in his face, there is little doubt that the critic above referred to would change his views. Experience is the best of all teachers, and it requires this, as well as study, to discuss professional matters, otherwise in advocating a small and perhaps unimportant advantage sight may be lost of the several more weighty and overmatching advantages. To the other claim that we have no means of handling a fleet in a fog, it may be said that at the present stage of human knowledge it will always be a difficult problem to properly handle the fleet in a fog, and in this respect our navy does not differ from others."

Design of Turret and Ammunition Supply.

As to turret designs, the American turret design, with respect to its ammunition supply, may be described as the "all-round loading direct ammunition hoist type"; that is, the guns can be loaded at any position in the arc of their train and while in motion, as distinguishing the type from the former English custom of having to revolve the turrets to a fixed position for loading after each time the guns were fired.

The turret mounting of heavy guns in the French Navy is similar to ours. Some of the more modern French turrets, instead of having the ammunition to go direct to the breech of the gun, have it delivered direct from the "handling room" to the turret at the side of the gun, from which position it is carried around the gun to the rear and loaded by hand.

Reviewing the practice of the different naval Powers in respect to the design of turrets and the method of supplying ammunition, it will be seen that the differences are not radical departures from any general idea, but refer principally to the detail mechanical arrangements. The English

United States.

adopted their two-stage hoist because they found by practical experience it gave greater rapidity of loading, and the question of safety did not enter into the discussion at the time of its adoption. After an examination of the designs of turrets of foreign navies it cannot be said that the practice abroad in general is any safer than in this country, and if the great majority of foreign turrets were to be subjected to four such severe ordeals as ours have passed through, it is difficult to say that they would have fared any better or even as well. The apparent deficiency in the supply of the present hoist, as shown under target practice conditions, would not be by any means so great in battle as it is apparently considered by some of the critics, as it is extremely doubtful if in the actual fighting as much ammunition would be required or could be used as is now the case under present target practice firing.

It has been stated that the openings above and below the guns are ten feet square. If this were the case the exposed area would be one hundred square feet. As a matter of fact, it is by actual measurement nine and twelve hundredths square feet. The chances that even one heavy shell would enter the space above the port in action are very remote indeed; but the phenomenal advance made during the last few years in rapidity and accuracy of fire of the intermediate and secondary batteries of warships has accentuated the recognised importance of reducing the port area to a minimum and of providing a suitable protection. Steps were taken to accomplish this result in 1903, and all vessels completed since the beginning of 1904 (except for cruisers of the "Colorado" class, having eight-inch guns) have been fitted with shutters or shields.

It is claimed that these (the "Kentucky" and the "Kearsarge") are not fit for service in battle line against really modern vessels. No one would claim that these ships could engage in battle on terms of equality with the most modern battle-ships, as they are inferior in size, armour, and armament to the latest vessels of our own and foreign navies, and to assert otherwise would be tantamount to denying that there had been any progress made in the art of battle-ship building for twelve years. No commander would hesitate to take these vessels into a fleet action, and it cannot for a moment be believed but that, with their heavy batteries of thirteen- and eight-inch guns and good armour protection, they would give a good account of themselves, not only against ships of about their own date of design, but also against any other vessel falling within the range of their guns. They are good and effective ships, but we do not claim that they are as efficient as more recent vessels.

The official records of the Department amply and clearly disprove the statements made as to nothing having been done to remedy the defects alleged to exist in our direct loading ammunition hoist, as prior to the unfortunate accident on board the "Missouri" in April 1904 both the Bureaus of Ordnance and Construction and Repair had endeavoured to obtain a satisfactory form of shutter doors designed to close the opening in the turret floors after the passage of the ammunition cars to the guns.

United States. As early as January, 1904, the Bureau of Ordnance took up the matter of design of a two-stage ammunition hoist with a company well known as manufacturers of ordnance and ordnance material in connection with a model subsequently exhibited by them at the World's Fair, St. Louis. Every effort was made to put an ammunition hoist of this type in the United States ship "New Hampshire," and contracts were actually made in August, 1905. It was found, however, that the design was too heavy, involving a total increase of structural weight of the turret of more than one hundred and fifty tons, and that it could not be installed without greatly exceeding the weights allowed for ordnance outfit.

Modifications of this type of hoist were subsequently made by which its weight was greatly reduced, and the adoption of this hoist or a hoist of similar nature was determined upon by the Board on Construction prior to the accident on the "Georgia." The report of the special turret board simply confirmed the action of the Board on Construction, but was not received until months after the type of turret above referred to had been decided upon, and did not, therefore, cause the adoption of the turret, as has been claimed by the incorrectly informed persons alluded to.

In regard to the direction of the screws, Admiral Converse says that some American vessels were built with inturning screws because of the supposed advantage and because also foreign navies of longer experience were using the inturning screw. Later, however, the Department became convinced that the advantages of the inturning screw were supposed rather than real and it was superseded by the outturning screw. In this connection we would refer to what Rear-Admiral Melville, U.S.N., has to say in another column on the subject of inturning screws.

Admiral Converse admits that the supply of torpedoes is smaller than it should be, but this fault, he says, is due to the inability of the torpedo manufacturers to build them, and not to any lack of effort on the part of the Department. With respect to gun-sights and range-finders, he says the American war vessels are as well equipped as those of any other nation. In conclusion Admiral Converse says:

"Our ships are not inferior to those of foreign services. We have made compromises in our designs of battle ships, because it is impossible to construct a perfect battle-ship. Such compromises have, perhaps, detracted from the desired perfect ship in some respects, but at the same time have made it possible to improve upon some other existing disadvantages, and on the whole the compromises, each and all, have tended towards a nearer approach to the desired perfect finality. Other nations have laboured and will, like ourselves, continue to labour under this same difficulty in endeavouring to approach as near as possible to that impossibility—a perfect battle-ship. In making compromises in the building of our ships I am satisfied that in every instance all concerned in the work have acted honestly and patriotically, and only with the desire to produce the best ship possible The result has been in each case, ship by ship, and year by year, an im-

United States

provement upon all that have preceded, and no ship has been built by us inferior to those of any nation designed at the same time.

"The quality of the material of our Navy is inferior to none; in quantity of vessels alone we are lacking. With an increase in the number of ships the American Navy will have been supplied the only necessary feature to make it second to none in all that tends toward fighting efficiency, and when the stress of actual combat, if such should ever unfortunately come, brings the only really practical test, our country need have no misgivings or fear but that our battle-ships will give an excellent account of themselves and prove themselves all that we have designed them for and know them to be."—*U.S. Army and Navy Journal.*

MILITARY NOTES.

Home.

The following are the principal appointments which have been made:—

Lieut.-General—J. H. Wodehouse, C.B., C.M.G., to Command the Northern Army (India).

Major-Generals—A. A. Pearson, C.B., to Command a Division (India); H. C. Sclater, C.B., to Command a Division (India); C. A. Hadfield to be Major-General in Charge of Administration in South Africa.

Colonels—W. B. Landon, C.B., to be Inspector of the Army Service Corps, with temporary rank of Brigadier-General; P. S. Marling, V.C., C.B., to be a temporary Brigadier-General to Command a District; F. E. Wallerstein to Command a District; G. R. F. Smith to be an Assistant Adjutant and Quartermaster-General; W. L. White to be Commandant of the School of Gunnery; P. E. F. Hobbs, C.M.G., to be an Assistant Director of Supplies and Transport.

Austria-Hungary.

New designations of the Generals Commanding Army Corps and of Cadets doing duty as Officers.—By virtue of an Imperial Decree of the 15th of November, the Generals Commanding Army Corps, who come from the infantry, will be for the future designated by the title of "Generals of Infantry"; those who have served in the cavalry by that of "Generals of Cavalry"; and those from the artillery and scientific corps by that of *Feldzeugmeister.*

A Decree of the 13th of November directs that cadets doing duty as officers will for the future bear the designation of ensigns (*fähnrich*), but they will continue to be considered still as non-commissioned officers.

Use of Milk in Soldiers' Diet.—A circular of the Minister of War directs that trials should be made with the view of developing the consumption of milk and its products (cheese, caseine, curds, etc.) in the Army.

Austria-Hungary.

The military authorities hold the opinion that milk foods should be issued proportionately with beef and vegetables with the men's rations, and are particularly suitable for the sustenance and development of the organism of men who have to engage in a good deal of muscular and intellectual work.

Formation of new Machine Gun Detachments.—A Ministerial Order of the 4th of November last directs the formation of 100 new machine gun detachments:—

1. *On the 1st January*, 1909, in 55 regiments of infantry, 6 battalions of Chasseurs (2 guns each), 1 regiment of cavalry (4 guns).

2. *On the 1st February*, 1909, in 24 regiments of infantry, 14 battalions of Chasseurs (2 guns each).

The Austro-Hungarian Army already possesses 57 infantry machine gun detachments, viz., 39 with 2 guns (Regular Army), 18 with 4 guns (*Landwehr* and *Honved*). Three cavalry detachments of 4 guns each, viz., 2 attached to Regular Army and 1 in the *Honved*.

On the 1st February, 1909, there will be 156 infantry machine gun detachments, viz., 138 with 2 guns (Regular Army), 18 with 4 guns (*Landwehr* and *Honved*). Four cavalry detachments, with 4 guns, viz., 3 attached to Regular Army and 1 to the *Honved*.

Each regiment of infantry and of Chasseurs or battalion of Chasseurs of the Regular Army will then possess a 2-gun detachment, with 2 detachments for the 22nd Regiment, which is in Dalmatia and divided into two groups. Three of the five cavalry divisions will have on the 1st February a 4-gun detachment.

In December, 1907, the Austro-Hungarian Army could only dispose of the cadres of 19 machine gun detachments without a permanent or definite character. In one year, by a considerable effort, the Army has been supplied with this new infantry and cavalry weapon.—*Revue Militaire des Armées Etrangères.*

Long-distance Ride.—An interesting long-distance ride took place recently, from Buda-Pesth to Vienna, the competitors being Austrian and Hungarian cavalry officers. The distance is 240 kilometres (150 miles); the first third of the road being very hilly, while the remainder of the distance was over level country.

The start was made between 2 and 4 p.m., so that the competitors had to ride all night to reach their goal. Every officer taking part had to ride his own private horse, and wear his sword. In order to obtain a prize, the competitors had to submit to an examination of condition, arranged so that each rode at a gallop over a kilometre (⅝ mile) with a ditch and fence as obstacles, in not more than 3 minutes, and over the same course at a trot in not more than 5 minutes. This test was to take place in the 36 hours which followed the arrival at the winning point. Owing to the small value of the bulk of the prizes, the number of entries was not so great as was expected.

The first prize was a cup from the Kaiser and 3,000 francs; but the second prize was only 200 francs, and the remaining competitors only received a commemorative medal.

Austria-Hungary. It is well known that the Hungarian Hussars are the best riders in the Austro-Hungarian Army, and it is not surprising that the first six winners were all Hussars—a proof also of the excellent breeding of the Hungarian horses; most of the horses ridden by the competitors were half-breeds, reared in Hungary.

The roads as far as the frontier were good, but after that very bad, and the weather was excessively hot.

The winner of the first prize was Sub-Lieutenant Wodianer of Maglod, belonging to one of the Hungarian Hussar regiments, who covered the distance of 150 miles in 16 hours and 38 minutes; the second and third to arrive took 17 hours and 10 minutes, the last to arrive taking 19 hours and 41 minutes. Only one horse failed to come up to the required final test, and that arose through his refusal at first of the jump. Two horses died of fatigue, and one was drowned by accident.

Lieutenant Wodianer's performance is looked upon as a fine one, averaging, as he did, 15 kilometres (9¼ miles) an hour during the ride.—*Armée et Marine.*

China. *The Grand Manœuvres*, 1907.—The Grand Manœuvres of 1907 were not on the scale that the Government originally contemplated, and were reduced to one mixed brigade operating against another. They were not less interesting on that account, and it is permissible to note the progress in instruction made in the new Chinese Army, particularly in what is known as the Pekin Army, commanded by General Fong-Chan, which consists of four divisions (1st, 3rd, 5th and 6th), of which the 3rd Division is detached in Manchuria and the 5th in Shantung.

The manœuvres took place on the 1st, 2nd and 3rd of November, 1907, without the assistance of the Japanese officer-instructors, in the neighbourhood of Léang-Hiang-Hsein, to the south of Pekin. In the manœuvres of 1906 the Japanese officers took a leading part

Each mixed brigade consisted of six battalions of infantry, two squadrons of cavalry and nine batteries. The artillery of the northern side was composed of six field batteries and three mountain with 75-mm. (2·9-inch) Q.F. guns, Schneider-Canet system; that of the southern side of three batteries of 2·9-inch Q.F. guns on the Arisaka system, and of six batteries of 2·2-inch guns of Chinese manufacture.

General Idea.—A southern army, coming from Hupel, had beaten the Honan troops, and was marching north. It had sent in advance by rail a mixed detachment, which had orders to penetrate into Chili.

A northern army was concentrated in the Hunting Park, Pekin, and pushed a mixed detachment to the south in the direction of Pao-Ting-Fu.

Remarks.—The three engagements of the manœuvres, which took place on level ground, do not call for any detailed description. We will confine ourselves simply to some tactical observations.

The columns of march were formed according to European methods. The same disposition was observed during the three days; each side disposed on its left flank a strong flank guard, with or without guns, more in view of executing a preconceived enveloping manœuvre than with the object of guarding against a flank attack by the enemy.

China.

The different units occupied positions marked out on the map, deployed, marched on an objective agreed on in advance, and halted on a line similarly fixed. Some reinforcements, denoted by flags, came up at the last moment.

The Infantry.—The mean effective strength of the companies was 100 men, armed with Japanese 6·5-mm. rifles.

The utilisation of cover, although better than at the manœuvres of 1906, still left much to be desired. The scouting detachments were kept too closely together. The general deployment was preceded by the re-forming of the battalions concealed in the wooded villages; the units thus reformed debouched from the cover in very dense formations, and then extended in skirmishing order when about 2,000 metres from the enemy; the course of the battle developing itself on the same lines as in the manœuvres of 1905 and 1906. The fire discipline was still very defective.

As in previous manœuvres, the defending troops sheltered behind trenches or concealed under cover of the edges of a wood, affording an excellent field of fire, left their cover when the assailants arrived within 300 or 400 metres on level ground; the latter then halting, opened a rapid fire, which should have been very effective.

The artillery supports were too close to the batteries.

Cavalry.—The squadrons were about 200 sabres strong. The Mongolian ponies were in good condition.

The reconnoitring was worse even than in 1906. The cavalry on both sides knew approximately the point where they ought to meet, so their march had little of the nature of scouting. The evolutions were mediocre, and the attack was made carelessly and in a disorderly manner.

During the fighting between the two main bodies the cavalry on both sides remained passive on the flanks, 2 or 3 kilometres (1—1¾ miles) from the wings of the infantry, without taking any steps to assist the other arms.

Artillery.—The Schneider-Canet field guns were drawn by eight horses.[1] The guns were correctly served, as usual; but the tactical instruction of the Chinese artillery has still to come. The batteries occupied positions fixed in advance on the map, without the least cover. They formed up on the same line, in the same order, on ground absolutely level, visible from all quarters. On the side of the defenders there were rifle pits for the *personnel* and trenches for the wheels.

The artillery on both sides devoted themselves to an artillery duel, which they continued without troubling themselves about the infantry.

Schools of Firing being still quite the exception, the Chinese artillery officers have no idea of how to work their guns efficiently.

In spite of the numerous imperfections which have to be recorded, the manœuvres of the Pekin army, prepared and carried out without the assistance of the Japanese officers, show that the infantry and artillery are making real progress; the cavalry, on the other hand, did not do so well as in 1905 and 1906.

---

[1]The Creusot firm have just presented the Chinese Government with four lighter types of gun, with which experiments are being carried out simultaneously with similar Krupp guns.

China. The discipline, the order, and the display of *amour-propre* on the part of both officers and men, have been noteworthy.

General Fong-Chan has presented a detailed report to the "Throne" on the manœuvres. The criticisms he has made are justified and strongly put. This is something new, and is to the credit of the young Chinese General Staff.

But it is impossible to believe that the whole Chinese army is on a level with the divisions of the Pekin Army. If the divisions of the Yang-Tsen Province are beginning to approach the same standard, those of the rest of the Empire, in the course of slow organisation, are at present only taking the first tactical steps under the direction of a very small number of officers trained according to modern ideas.—*Revue Militaire des Armées Etrangères.*

France. *Reorganisation of the Artillery.*—The artillery organisation, especially as regards its increase, occupies at present first place in military interest. The new scheme, which was laid before the Chamber originally at the end of November, 1907, provided that the number of guns with each Army Corps should be increased from 92, the present establishment, to 144, as in Germany. But on the 25th of last October, General Picquart, the Minister of War, informed the Chamber that the plan had been altered, and that it was now proposed that each Army Corps should be provided with 120 guns, instead of 92, viz., 30 batteries of 4 guns each. The new scheme is now being considered in the Chamber, and there have been some lively discussions. According to the new proposals, there are to be :—

a. In France.—64 field artillery regiments, instead of 40 as at present, with 619 mounted batteries (instead of 445), 11 fortress artillery regiments (in place of 16 fortress artillery battalions), with 89 fortress and coast batteries (number of batteries unchanged). By a Presidential decree of 25th October, twelve batteries of foot-artillery have been transformed into twelve mounted.

b. In Algiers-Tunis.—7 independent artillery groups, with altogether 15 mounted, 4 mountain, and 8 coast batteries (up to the present 15 detached mounted batteries and 2 fortress artillery battalions).

In addition, the horse batteries are to be reduced from 52 to 16, the mountain batteries from 34 to 18, while the 155-mm. (11-inch) howitzer batteries are to be increased from 9 to 21. From these numbers it is evidently the intention to add to each Army Corps a corps-artillery regiment and a howitzer battery, to each infantry division a division-artillery regiment; to each cavalry division 2 horse batteries. The number of 120 guns arrived at by this means is, however, in case of mobilisation to be still further increased by the raising of reserve batteries, for which the correspondingly increased establishment of batteries on the peace establishment would have to form the indispensably necessary nucleus. How many such reserve batteries are to be formed is not laid down in the scheme. We may conclude that every two peace batteries would be in a condition to provide a cadre—a weak one certainly—for the formation of a reserve battery, the bulk of whose men would be reservists. General Picquart expressed the hope that the reserve batteries so formed would after a few

France. days' training be as good as the active service batteries. What has been ultimately decided has not yet been reported. —*Streffleurs Militärische Zeitschrift.*

The Enrolment of the Natives of Algeria for General Military Service. —A Commission was some time ago appointed to study on the spot the question of enrolling the natives of Algiers for compulsory military service. The report of this Commission has now been submitted, and its purport is as follows :—The principle of universal military service is practicable for Algeria, but it will be necessary, after the freedom that has been enjoyed, to make a beginning in the first place, by only enrolling 5 per cent. of those fit to bear arms, and then to gradually increase this percentage as the people have become familiarised with the system. Substitutes are to be permitted, and a small gratuity is to be awarded to the enrolled recruits. The men thus raised are to be embodied in special regiments of their own, and will not be mixed with the existing voluntarily engaged *Tirailleurs* and *Spahis*. Algeria can thus, in the opinion of the Commission, in a few years contribute 120,000 trained natives as follows : 30,000 volunteers (*Tirailleurs* and *Spahis*) and their reserves, 90,000 enrolled in accordance with the new law, and their reserves, whilst up to the present out of a population of four and a half millions, scarcely 19,000 volunteers (*Tirailleurs* and *Spahis*) have been enlisted. On the basis of this Report, the same Commission was empowered to draw up lists of all natives over 18 years fit to bear arms. This produced some unimportant demonstrations, but according to official reports, there seems likely to be no serious difficulties in the way of carrying out the new law. It should not pass without notice that according to Article 2 of the Law of 1905, the recruiting of natives can be regulated by Presidential Decree, Parliamentary sanction not being absolutely essential.—*Streffleurs Militärische Zeitschrift.*

Camps of Exercise.—Since 1904 some three million francs (£125,000) has been devoted yearly for the organisation on a practically permanent footing of camps of exercise. Up to the present such exist in eight army corps districts and are utilised as follows : The camp at Sissone by the 1st and 2nd Army Corps, at Chalons by the 6th Corps, Valdahow by the 7th Corps, Coëtquidan by the 10th and 11th Corps, La Courtine by the 12th and 13th Corps, Le Larzac by the 16th, Songy by the 18th, and Mailly by the 20th. It is acknowledged as necessary that six more such camps should be created, but owing to Budgetary reasons the work on them cannot be taken in hand this year. The question of these camps of exercise plays in France an all the more important *rôle* as, owing to the shortening of the training period of the reservists from 28 to 23 days, which for practical purpose is only 17 days, a rational training of reserve regiments can only be carried out by their transfer to the training camps.—*Streffleurs Militärische Zeitschrift.*

The French Army is to have white bread next year. It has been discovered that the bread hitherto used, which contains a small proportion of bran, and is popularly known as the "boule de son," or "bran ball," does not fully absorb liquid, and is therefore unsuitable for thicken-

France. ing soup. It was also found that great waste resulted from giving each man his own rations—a 3-pound loaf every two days. Not only is white bread to be used in future, but each man will take what he requires at meal times. The reduction of waste is expected to make up for the extra cost of white bread. The French soldier's daily ration on the march is :—Meat without bone, 8·40 ounces; bread, 35·30 ounces (or biscuit, 26·50 ounces); dried vegetables, 2·12 ounces; salt, ·50 ounce; sugar, ·70 ounce; coffee, ·60 ounce.—*Army and Navy Journal.*

Germany. *Bridges Over the Vistula.*—A new bridge is in course of construction over the Vistula, near Marienwerder, and the new line from Schmentau to Reisenburg through Marienwerder will pass over it.

Between the sea and the Russian frontier, near Thorn, the Vistula will be crossed at five points by railway bridges: at Bromberg, Thorn, Grandenz, Marienwerder, and Dirschau-Marienburg.

The Sanitary Condition of the Horses in the Prussian Army.—An official document (*Statische Veterinär-Sanitätsbericht über die Preussiche Armee*) reports as follows on the sanitary state of the horses of the Prussian Army for the year 1906.

The total number of horses on service in the Prussian Army (the 13th Würtemburg Corps being included) rose in 1906 to 86,094. Of these number 40,204, that is to say 44·1 per cent., were attacked by diseases necessitating treatment. This is the highest proportion which has been reached during the last ten years. In 1905 the average number of maladies for the year was 36·9 per cent., so that 1906 showed an increase of more than 8 per cent. This increase is explained by the extraordinary extension of epidemic diseases, notably those of the chest and intestines. The largest number of cases of these diseases (12,311) are reported in the third quarter of the year, the time of the manœuvres, during which the horses have to go through a great deal of hard work.

The Guard Corps shows up the most unfavourably, with 3,475 cases of disease; whilst the 18th Corps (Frankfort-am-Main) comes out best with only 1,175 cases, the mean of the other Army Corps being 2,206. The cases of disease are divided between the different arms as follows :—

	Cases.	Per Cent. of Effectives.
Cavalry	26,589	48·9
Field Artillery	10,688	38·9
Train	1,494	37·4
Draught horses for Foot Artillery ...	436	56·6
Machine Gun Detachments	238	31·5
Institute of Military Equitation	301	58·3
Field Artillery Firing School	189	23·6

The high percentage reached at the School of Military Equitation is explained by the excessively hard work to which the horses are subjected at this establishment. In regard to the draught horses of the foot artillery, who also show out very unfavourably in the list, this is considered to be due to the greater sensibility of this class of horses to fatigue and weather conditions.

Germany.

Diseases of the chest, which were particularly severe in 1906, head the list, colic coming next. In revenge, this last disease has caused the greatest mortality (487 cases), whilst the chest diseases only proved fatal in 263 cases. In spite of all investigations which have been made, the causes and conditions of the propagation of these diseases are still not satisfactorily accounted for.—*Revue Militaire des Armées Ertangères.*

New Cavalry Regulations.—It has been decided to prepare new regulations or a training manual for the German cavalry. General Bernhardi, in a recent volume, "Gedanken zur Neugestaltung des Kavallerie-Reglements," says that the present organisation of the German cavalry does not answer in any way to the requirements of modern war. He is referring to the work of independent divisions, which he would like to see organised upon a basis of three brigades, each comprising three regiments—that is, with the total strength of thirty squadrons. Such forces were seen in the war of 1870, but have since dropped out of the German regulations. General von Bernhardi desires to see the cavalry forces strong and invested with the power of high mobility. In regard to dismounted action, he strongly enforces the necessity of it being inspired by the spirit of the offensive. He holds that cavalry, independent of infantry or cyclists, should be able to undertake infantry work in the attack. The *Armee-Correspondenz* remarks that in the late manœuvres the patrol work and reconnaissance of the cavalry were very well conducted.—*Allgemeine Armee-Correspondenz.*

New Uniform.—The bright tunics of the German soldier having been declared impracticable for use in war, a new uniform has been devised for the infantry, and is now ready for issue. The general tone colour is grey; the tunic is loose-fitting, with dull bronzed buttons and a double collar. The belt is brown, while rifles, cooking utensils, and spades, etc., and the swords of the officers are dulled. The principal objection in abolishing the heterogeneous character of cavalry uniforms was that without the distinguishing marks the horse regiments would not be able to re-assemble quickly after a charge; but it has been finally decided that that arm of the Service shall also be fitted out with grey uniforms, although out of deference to tradition each arm will preserve its traditional pattern of headgear, with, however, grey casing. The artillery will eventually be fitted with the new uniform, but only for time of war.—*Army and Navy Journal.*

Dirigible War-Balloons.—Major Parseval's dirigible balloon having successfully passed through the required tests has been accepted by the military authorities. The German Army is now in possession of three different systems of dirigible balloons: those of the "rigid" type, like the Zeppelin; those of the non-rigid type, the Parseval; and again those of the intermediate type, the "semi-rigid." Naturally each system has its partisans and its detractors, but we believe that each of them will be found to have its uses conformably to the method of construction and the particular advantages that each presents. In any case the military adminis-

Germany.

tration has had sufficient reason not to commit themselves to a definite choice of one system to the exclusion of the others, and this is the case in most countries. That the German Crown Prince has made an ascent in Count Zeppelin's dirigible can at least be considered as evidence of confidence in the absolute security of this machine. Three other dirigibles of the same type have been commenced, and are to be completed during the present year.—*Revue Militaire Suisse.*

The Age of Officers.—The position of officers due to their age is anything but satisfactory at the present time. The last appointed 1st lieutenants have already served in the infantry for ten years and a half, in the cavalry for eleven years, and in the field artillery for twelve years. The new captains remained lieutenants from 7 to 8 years, and the majors occupied the lower rank for about 11 years. The result is that a captain only reaches that rank after 18 to 20 years' service as an officer, and major's rank only after 30 years. It is admitted that the majority of officers obtain their first brevet when they are 20; they cannot then become 1st lieutenants until they are 30 or 32 years of age, captains at 38 or 40, and majors at 51. Moreover, in the infantry and cavalry a major has to wait two years after his nomination before he obtains the pay of his rank. It is true that officers who have recently been promoted to captain or major are not quite so old as the ages given above, but that is because they had not to serve so long as lieutenants as officers of the present day, and it is only during the last 10 or 15 years that the conditions of promotion have become so much worse. But even the youngest captains among them have already 16 years' service, and have therefore reached the age of 36, while the youngest majors are 45. It does not look as if matters would soon get better. It is therefore extremely desirable that the contemplated increase of pay should soon be carried into effect.—*Revue Militaire Suisse.*

Recruiting Returns for 1907.—The returns show that in 1907 1,189,845 men were fit for service. Of this number 860 were struck off, 212,899 allotted to the reserve and *Landsturm*, and 223,035 incorporated in the Active Army. These figures are remarkable, as they show that Germany disposes of a considerable number of effectives in excess of her requirements; moreover, the great majority of the men sent to the reserve and *Landsturm* are perfectly fit for active service, but are not enrolled for it as the effectives are complete. There are, further, 51,737 volunteers entered for one or two years' service. These results are particularly satisfactory when it is considered that in France only 220,693 men are incorporated in the Army, among whom are a great number more or less able-bodied. It can be foreseen that the number of those incorporated in France will probably come down to 210,000.

Another fact brought to light by the recruiting results is the influence of the rural life on fitness for service. Out of a hundred conscripts born in the country and occupied in agricultural work, a mean of 58·7 are fit for service; if born in the country, but they have left it, this mean falls to 57·48. Out of 100 recruits born in towns but working in the country, a mean of 56·8 are fit, but if these same young men work in towns the number falls to 49·87.—*Revue Militaire Suisse.*

Italy.

New Uniforms.—The *Giornale Militare Officiale* of the 5th of last December states that a new grey-green field uniform has been settled on for the infantry, Bersaglieri and Alpine troops, artillery and engineers, which has been already issued for peace, and is to be worn at all exercises and on occasions for which hitherto marching kit has been prescribed. The present uniforms are to be retained for garrison service; only the infantry, fortress and coast artillery and the engineers are to receive in place of the present overcoat, the cape (*mantellina*) of dark blue cloth. On the other hand, the Alpine troops will wear the grey-green uniform with the cape when on garrison duty, while the mountain batteries will also wear a grey-green cape when on garrison duty.—*Streffleurs Militärische Zeitschrift.*

Increase of the Alpine Battalions.—From the returns of the stations of troops of the 31st October, 1908, some interesting details may be gathered. The number of the Alpine battalions has been raised from 22 to 24. One of the new battalions has been stationed at Biella (in the Province of Novara); it is designated as provisional. The other is in garrison at Tolmezzo, in the Valley of the Tagliamento. The provisional battalion makes part of the 4th Alpine Regiment (Ivrée), which has passed on one of its battalions to the 3rd Regiment (Turin). The battalion at Tolmezzo is attached to the 7th Regiment (Conegliano), with a strength of 3 to 4 battalions. The composition of the Alpine regiments is at the present time as follows: 1st, 2nd, 4th, and 6th, three battalions strong; 3rd, 5th, and 7th, four battalions.

It is not stated if the number of companies (75 in all) have been increased, but it is possible that the two new battalions have been formed by men selected from the others, which have for the most part a strength of 3 companies.

It is stated that on the Austrian frontier the winter garrisons of the Alpine troops have been appreciably altered. On the 1st of November, 1907, there were on this frontier 6 Alpine battalions (6th and 7th Regiments), 2 at Verona, 1 at Bassano, 2 at Conegliano, and 1 at Padone.

This year they have been increased from 6 to 7 battalions, four of which occupy sheltered posts in the mountainous region of the frontier: 2 battalions at Verona, 1 at Bassano, 1 at Feltre, 1 at Tai di Cadore, 1 at Tolmezzo, and 1 at Gemone.—*Revue Militaire des Armées Etrangères.*

The Combined Army and Navy Manœuvres, 1908.—The criticism in the Italian Press of the last year's combined army and navy manœuvres, was very severe, and it particularly stigmatised the manifold failures of the supply department, which was all the more blameworthy on account of the comparatively weak effective of the troops. Even if allowance is made for a certain amount of exaggeration, one must admit that the commissariat service was not at the height of efficiency. One cannot, at the same time, dispute that both *personnel* and *matériel* are lacking for peace training. What is not taught in peace will not be learnt in war, and the greater or less defects of the supply service are by no means novelties at Italian manœuvres. The combined army and navy manœuvres which came to a conclusion on the 6th September last, excited a widespread

Italy.

interest throughout the population. The defending force managed to put four of the larger ships of the attacking force out of action; with its torpedo-boats the latter, however, succeeded in gaining undisputed mastery of the sea, which entailed the hypothesis of the landing of large forces. These facts have caused the Italian Press to unanimously demand the hastening of the construction of the Italian Navy at express speed, and the transference of the centre of gravity of the defence of the coasts to the Navy, which must be strengthened with sufficient offensive power always ready for that purpose.

As regards the combined manœuvres themselves, the land forces of the invading party (Red), under the command of General Zuccari, consisted of the 8th Division, strengthened with Bersaglieri and cavalry (a portion of the artillery and engineer siege park was supposed to have been already landed), as well as with a mixed brigade, weak cavalry and 7 artillery and engineer siege park units. The problem for the land operations of the Red force was to endeavour to enclose and besiege the works which were opposed to the gaining of ground, and to the advance of the landing troops, especially with regard to the Altaro Vado Fort. The Red force had to endeavour to gain the heights and establish itself there. The Blue force had: 1. To prevent the landing and, with the aid of the coast works, to arrive at the threatened points at the right time; 2. To prevent the surrounding of the works; and 3. Chiefly with the help of the Mobile Militia (Landwehr) Division to stop the further advance of the enemy. The Blue force had at its disposal: 1 Landwehr division, the garrison of the works and forts, and the coast defence units.

The portion of the Red force supposed to have landed assembled between Pietra Ligure and Finalmarina. The embarkation, too, of the heaviest gun was carried out smoothly and expeditiously. On the same day the portion of the Red force supposed to have landed moved to between Leghorn and Albruga; the Blue force had its main body at Carcare; the garrisons round Altaro Vado were at full strength.

The disembarkation of the troops from the war-ships was carried out at Spotorno, but as a matter of fact another place, less exposed to the enemy's fire, would have been selected, but the expiration of the contract for the chartered transport demanded speed. The Blue force made a skilful but, owing to the enemy's preponderance, a fruitless attempt to close with the Red's transports. As a proof of the expedition with which the disembarkation was carried out, after overcoming the opposition of the weak Blue units, that one ship landed an entire infantry regiment in 1¼ hours. After the disembarkation the ships of the Red force bombarded the works which could rake the Vado roadstead and the coasts as far as Altaro Vado. Of great interest were the ability and skill with which, after effecting a landing, the Red force brought up its batteries into the second artillery positions, and the rapidity and zeal with which it strengthened the works. Italian public opinion, however, in view of what was accomplished by the Blue force, mostly Landwehr, entertains the conviction that the country may confidently rely on her second line troops. This was the first time that heavy artillery in Italy has worked in conjunction with the other branches of the land forces in field operations.—*Précis from Jahrbücher für die deutsche Armee und Marine.*

Japan. *Japanese-Russian Medical Departments.*—Comparison of the work of the Japanese and the Russian medical departments in the Manchurian war was made by Major Charles Lynch, of the Medical Corps, U.S.A., and representative of the corps in that war, in the anniversary discourse he delivered at the meeting of the New York Academy of Medicine on 19th November. According to an abstract of his paper in the New York Medical Journal, he found the Japanese extremely liberal in medical *personnel*. They required one per cent. of medical officers and nine per cent. of inferior medical *personnel* to the total fighting force. Russia, while she had a very few eminent surgeons, as a whole was far inferior to Japan in this respect. The Japanese medical department had complete autonomy and the Russian had not. With all the thousands of wounded, and despite the heavy fire of the Russians, there were practically no wounded on the Japanese side who were not under shelter within twelve hours. "This achievement of the Japanese medical department was simply marvellous." The Japanese used no hospital trains in Manchuria. They did not have the necessary rolling stock. The Russians, on the other hand, had some fine hospital trains; but there were so few that usually Russian patients were put on any trains returning from the front, often without any provision being made for food or attendance. Japan always provided adequate, though sometimes rough, means for the care of the sick and injured. Hospital ships were frequently loaded in two hours at Dalny and immediately started back for Japan. Japan operated twenty such ships during the war.

The Japanese made use of the present-day knowledge of sanitation, and in consequence protected their Army better from the inroads of disease than had any other nation up to the present time. In the field army the Japanese reported one death from wounds to 0·47 from disease. Major Lynch believes Russian statistics are worthless; that the Russian percentage of loss from disease was at least twice that of the Japanese. Hygiene for the Army was taught in all the schools of the line officers, even in the Staff College, the highest officers' post-graduate school in Japan. A monthly physical examination was made of all Japanese troops. The clothing and equipment of the Japanese in every particular were excellent, except the shoes, which were the worst footgear which had been issued to an Army in a good many years. Probably no Army in a long campaign had been so well supplied with food at all times. Practically all water used by the Japanese in the field was sterilised; "all water was guilty until proved innocent." The habits of the Japanese soldiers were good. Drunkenness was almost unknown among them. They probably bathed more than any other people. Even in the field the soldiers had their extremely hot baths, and it was rare that a day passed that each soldier did not get into the Chinese jars which they used for bath-tubs. The Japanese regarded typhoid fever and dysentery as contagious diseases, and isolated them just as carefully as they did small-pox. Any Army which detected such cases as early as the Japanese did, and then isolated them, would succeed in cutting off one very serious source of danger. The Army relied on preventing flies from having access to their food by serving it only immediately before it was to be eaten. Very roughly, the Japanese might be said to have had about one case of typhoid fever

Japan. and dysentery to the Russian's six. Typhus fever, though quite common in Manchuria, was rare in the Army. Tuberculosis was not commonly seen in the Army. Small-pox was rare. Diphtheria, scarlet fever, mumps and measles occurred only in isolated cases. In peace 0·44 per cent. of the Army had beri-beri; in the Chinese-Japanese war this percentage rose to eighteen, and in the Russo-Japanese war it reached sixteen. The Japanese, excellent organisers, administrators, and sanitarians as they were, could teach Americans nothing on the practice of medicine and surgery. The Russian Army almost totally failed in increasing the efficiency of the Army as a fighting force by the aid of its medical department. America has but a small Army in peace, which must be augmented to a great extent by absolutely untrained men; so if Americans expect to rival the Japanese in low morbidity rates in war they must go widely outside the Army in teaching personal hygiene. This could only be done by good instruction in personal hygiene in schools. This really meant the instruction of a people. It was unnecessary to point out how much this would benefit the public generally in peace. A great deal has already been accomplished by the medical department of the American Army. Our military forces to-day are in a stage of transition, but are gradually approaching a logical organisation. They have been terribly hampered by lack of medical *personnel*.—*Army and Navy Journal.*

Russia. *Russian Losses in the Japanese War.*—Fred J. Conzelmann, in the *Military Surgeon*, says:—"In *Roths Jahresbericht*, Dr. Koerting reviews a masterly article of Follenfant, a military observer, during the war. Both armies accomplished extraordinary results in hygiene, the Russsians excelling the Japanese, according to Follenfant's and Koerting's opinion. Their general health was better and the death of the wounded less. The Russian surgeons were better than the Japanese. Follenfant found, towards the end of 1904, among the Manchurian army a dozen cases of typhus, about forty cases of anthrax, several hundred cases of typhoid fever, but no dysentery, cholera, plague or wound diseases. This was confirmed by Colonel Hoff, of the American Army, and Dr. Schaefer, from Germany, companions of Follenfant. The maximum strength of the Russian army was 1,262,000. Of such an army one would estimate, in times of peace, to have 600,000 sick, with 30,000 deaths. The Russians, however, had only 287,000 sick and 5,000 deaths, so that the health of their command was better than in times of peace. Of 113,800 wounded, 2·64 per cent. died. In some of the hospitals the percentage was still lower. The Russians lost in battle, 34,000, or one in every 3·5 wounded. Twenty-one surgeons were killed, twenty-one wounded, and twenty-eight taken prisoners. The sanitary corps had 193 killed, 297 wounded, and 47 taken as prisoners. The artillery wounds were all infected; fifty per cent. of the gunshot were infected in summer and eighty per cent. in winter. 56,717 cases of epidemic disease occurred; of these there were 25,800 intestinal catarrh, 15,800 typhoid, 8,970 dysentery, and 4,500 malarial cases. Ten per cent. of the typhoid fever cases died. The disease ran a mild course and disappeared completely in the winter. This remarkable result was influenced by 1. The favourable climate. 2. The excellent selection of the soldiers.

Russia. 3. The long winter. 4. Geographical location. 5. The excellent nursing. 6. Proper clothing. 7. Rest after engagements. 8. Prohibtion of the sale of liquor to soldiers. In the matter of nursing, Follenfant especially emphasises that preserves were not known, the nourishment being, as a rule, fresh food. Large bakeries, meat markets, and merchants of cities provided for that. The value of tea as a drink cannot be over-estimated, and hot water and sugar were never wanting for its preparation. The Russians never ate raw fruit. The transportation kitchen supplied a meat soup of the best quality. The kitchen is an excellent addition for the maintenance of health with troops in the field. In summer, 1905, when Follenfant left the Russian army, the health was better than in 1904. Of an army of 1,000,000 men, only 2·4 per cent. were in the hospitals. In no European war could the health conditions have been better than with the Russians in 1904-1905. The same impression that Follenfant has pictured, Koerting received from other literature, and especially from the writings of German observers and Colonel Hoff of the American Army, who cannot have come to the Russians with a preconceived notion."—*Army and Navy Journal.*

United States. *Report of Adjutant-General.*—The report of the Adjutant-General of the Army, Major-General Ainsworth, presents the following comparison between the authorised and the actual strength of the Army on 15th October, 1907 and 1908, showing an increase of 19,168. To the total actual strength in October last of 73,166 officers and men is to be added the Hospital Corps of 3,500 men. The authorised strength has been increased by 330 officers and 7,608 men.

—	Regular Army, including Porto Rico Regiment.			Philippine Scouts.			Total.		
	Officers.	Enlisted.	Total.	Officers.	Enlisted.	Total.	Officers.	Enlisted.	Total.
Authorised strength.									
October 15th, 1908...	4,307	77,743	82,050	166	5,508	5,674	4,473	83,251	87,724
October 15th, 1907...	4,027	70,435	74,462	116	5,208	5,324	4,143	75,643	79,786
Increase during year	280	7,308	7,588	50	300	350	330	7,608	7,938
Actual strength.									
October 15th, 1908...	4,116	68,512	72,628	114	5,424	5,538	4,230	73,936	78,166
October 15th, 1907...	3,774	50,762	54,536	116	4,346	4,462	3,890	55,108	58,998
Increase during year	342	17,750	18,092	—	1,078	1,076	340	18,828	19,168
Vacancies.									
October 15th, 1908...	191	9,231	9,422	52	84	136	243	9,315	9,558
October 15th, 1907...	253	19,673	19,926	—	862	862	258	20,535	20,788

There are 55,654 officers and men stationed in the United States; 5,121 in Cuba; 18,306 in the Philippines; 1,146 in Alaska; 632 in Porto Rico; 269 in Hawaii; and 559 en route or officers at other foreign stations. The deaths from all causes were thirteen officers, men 111; resigned or discharged, 47 officers, men 30,564; dismissed, 4 officers; deserted, 1 officer, men 4,524; retired, 76 officers, men 272. Total casualties, 35,912.

United States. One enlisted man was wounded. The percentage of desertions to latest strength for different years was as follows: 1908, 4·6; 1907, 5·6; 1906, 7·4; 1905, 6·8; 1904, 6·6; 1903, 7·1; 1902, 5·0; 1901, 4·1; 1900, 4·0; 1899, 3·2.

The largest percentage of desertions last year was in the cavalry and field artillery, 5·7; the smallest in the coast artillery and infantry, 3·9. There was a decrease in all branches except the Hospital Corps, which showed a slight increase. The regiments having the largest percentages of desertions were the 14th Cavalry, 13·13; 3rd Infantry, 10·48; 5th Cavalry, 10·38; 2nd Field Artillery, 7·77.

Of the troops, batteries, and companies, Troops G, K, and F, 14th Cavalry, and Troop H, 5th Cavalry, head the list, with 21·18, 20·43, 19·38, and 18·51 respectively. Battery C, 2nd Field Artillery, the 117th Company, C.A.C., and Company L, 11th Infantry, appear at the top of the lists for their several branches of the Service with 14·74, 14·28, and 18·39 respectively.

The percentages of desertions in the white troops were 4·75 per cent., and in the coloured only ·57 per cent. Of the desertions 58 per cent. were in the first year, 43 per cent. in the first half of that year. The desertions in July and August are double those in December and January. Of the 881 deserters apprehended and tried, 442 were convicted. There were 1,123 discharges by purchase; last year, 1,697. Of the accepted applicants for enlistment, 2,024 eloped before being enlisted; of those enlisted provisionally, 46,926 were accepted and 7,050 were rejected; 109,721 were rejected—78 per cent., as against 83 per cent. last year. There were 14,878 re-enlistments. Of the white men enlisted, 87 per cent. were born in the United States. Winter was the best season for enlistment. Of those enlisted 34,842 were under thirty; 5,958 between thirty and forty, and 1,614 over forty.

NAVAL AND MILITARY CALENDAR.

JANUARY, 1909.

1st (F.) 2nd Bn. West India Regiment embarked at Jamaica for Sierra Leone in *Cluny Castle.*

2nd (Sat.) Yuan-Shih-Kai, the Chinese Statesman, dismissed from Office.

5th (T.) H.M.S. *Hibernia* paid off at Devonport.

6th (W.) „ „ recommissioned at Devonport.

11th (M.) Arrangement reached between Great Britain and United States on Control and Division of Waterways along Boundary between Canada and United States.

12th (T.) Turkey accepted Austria's offer of £2,500,000 as compensation for annexation of Bosnia and Herzegovina.

16th (Sat.) 2nd Bn. West India Regiment arrived at Sierra Leone in *Cluny Castle*.
20th (W.) 2nd Bn. Highland Light Infantry embarked from Fort George for Cork.
22nd (F.) Launch of Scout-Cruiser *Bahia* from Elswick Yard for Brazilian Navy.
22nd (F.) 2nd Bn. Highland Light Infantry arrived at Cork.
26th (T.) Military Supply Department in India abolished by Lord Morley, Secretary of State.

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval.* Buenos Aires: October, 1908.—Has not yet been received.

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens.* No. 2. Pola: February, 1909.—"Telegraph Cables." "The Development and Present State of Submarine-Boats in different Countries." "Torpedo and Submarine-Boats' Attack, and how to Repel Them." "Torpedo-Battle-ships." "The Latest Italian Armoured Cruiser *San Marco*."

BRAZIL.—*Revista Maritima Brazileira.* Rio de Janeiro: November, 1908.—"Annual Torpedo Competitions." "The English Dockyards." "Naval Hygiene." "Barr and Stroud Range-Finder." "A Visit to "Barr and Stroud."" "Application of Balloons for Service with the Brazilian Navy." "A Practical School of Artillery." "Homœopathy in the Fleet."

CHILI.—*Revista de Marina.* Valparaiso: October, 1908.—"A Military Monte Pio." "Automatic Naval Gun." "An Interesting Pamphlet: A Contribution to the Study of Submersibles." "The *Vulcan*." "Chili." "Ballistic Problems." "Revolution in Naval War." "The New English Naval Base at Rosyth." "The Submarine Sentry." "War at Sea, by Captain Darrieus."

FRANCE.—*Revue Maritime.* Paris: November, 1908. — "Notes on Cyclones in the Indian Ocean in 1907." "Some General Considerations on Landing Parties." "History and Golden Book of the Corporation of Marseilles Pilots" (*continued*).

La Marine Française. Paris: January, 1909.—"The Germinet Incident." "The Army and the Fleet: The Necessary Inter-communication." "The Navy Abroad: Discussion of the Danger of Invasion in the House of Lords." "Everybody's Opinions: *A propos* of the Naval School on Shore." "Study on the Organisation of the School of Gunnery

Officers." "The Navy in Parliament: The Interpellation of M. Henri Michel" (*concluded*).

La Vie Maritime. Paris: 10th January, 1909.—"The Report of M. Chautemps." "Silence in the Ranks." "The Germinet Incident." "Notes on the Pay and Table Expenses in the Navy." "The Ideal Armament of a Fighting Ship."

25th January.—"The Causes of the Decadence of our Naval Artillery." "Drinkable Water in the Navy." "The Balance Sheet of the Navy." "The Utilisation of Medium Artillery." "The German Navy in 1908." "The Stability of Smokeless Powders." "The Launch of the Battle-ship *Voltaire.*"

Le Yacht. Paris: 2nd January, 1909.—"The Exercises of the Flotillas." "Yachting Notes." 9th January.—"Recruiting of the Seamen." "Yachting Notes." "Promotion Lists for 1809." "The *Tirailleur* and the Last French Destroyers." 16th January.—"The Entrance of Officers of the Navy." "Yachting Notes." "The Navy in 1908." "The Towing of Floating Docks Across the Atlantic." 23rd January.—"The Balance Sheet of the Navy." "Yachting Notes." "The Navy in 1908" (*concluded*). "The Launch of the *Voltaire.*" 30th January.—"Battleships to be Constructed." "Yachting Notes." "Promotion of Admirals." "The *Voltaire* and the "Thomson Programme."" "The Permanent Levy."

Le Moniteur de la Flotte. Paris: 2nd January, 1909.—"The Navy in 1908." "The School of Gunnery." 9th January.—"The Needs of the Present and the Future." "Questions of Pay." "The Administrative Reorganisation of the Navy." 16th January.—"The Torpedo." "Questions of Pay." 23rd January.—"Again Corvette-Captains." "The Minister of Marine at Sevran-Livey." "The Launch of the *Voltaire.*" "The Administrative Reorganisation of the Navy." 30th January.—"The Mobile Defences." "The Promotion of Officers."

GERMANY.—*Marine Rundschau.* Berlin: February, 1909.—"South Africa's Struggle for Unification." "Night Fighting." "The Discussions on the French Naval Estimates." "Regulations for the Use of Wireless Telegraphy." "The Effect of the New English 7,000-Yards Torpedo upon the Designs of New Ships." "The Year's Report on the United States Navy." Exchanges of Opinions on the Essays:—"On the Use of the Sounding Apparatus" and "On the Experiences in the Use of the Modern Sounding Apparatus.""

ITALY.—*Rivista Marittima.* Rome: November, 1908.—"The Krupp Cemented Armour Miscroscopically Examined." "M. Reuterdahl's Criticisms on the Ships of the U.S. Navy." "The Inland Navigation in the Valley of the Po." "Rassplata." *Supplement.*—"Naval Development in the 19th Century."

PORTUGAL.—*Revista Portugueza, Colonial e Maritima.* Lisbon: November, 1908.—"Portuguese Congo." "The Portuguese-German Mozambique Frontier" (*continued*).

Annaes do Club Militar Naval. Lisbon: December, 1908.—"Torpedo-boats in the Russo-Japanese War." "Accidents to Naval Guns." "The Catastrophe in South Italy." "Sound Submarine Signals."

SPAIN.—*Revista General de Marina.* Madrid: January, 1909.—"Some Ideas on Weather Forecasting." "Ice at the South Pole." "The Contracts for the Service of the Fleet" (*continued*). "Notes on the Errors which Affect the Course of a Ship." "The Present State of the Submarine Question." "Ceuta." "M. Reuterdahl's Views on the U.S. Battle-ships." "The Catastrophe in Sicily and Calabria."

MILITARY.

ARGENTINE REPUBLIC.—*Revista Militar.* Buenos Aires.—Has not been received.

AUSTRIA-HUNGARY.—*Danzer's Armee-Zeitung.* Vienna: 7th January, 1909.—"New Year's Greeting." "Before the War." "The Arch-Duke Heir to the Throne as Disturber of the Peace." "Our Preparedness." "The Decline of the Fleet." "The Policy of the Prince of Montenegro." "The Military Pretensions of the Magyars in the Light of History." "Reorganisation of the Italian Army." 14th January.—"The Demands of the New Situation." "Our Preparedness." "An English Criticism of the Government of the Emperor Francis Joseph I." "The Servian Forces." "England as the Protector of Freedom." 21st January.—"Energy and Self-Consciousness." "The Responsibility for the Great Servia Movement." "Austria-Hungary in Albania." "Italy's Victory and how the Anniversary is kept." "A Contribution to the History of the Occupation of Bosnia, 1878." 28th January.—"Schönaich's Psychology." "A Serious Word on the Vienna Barracks." "A Second *Risorgimento?*" "Financial Readiness for War and the Carrying on of War." "The Call to Arms of the Monarchy in 1809."

Streffleurs Militärische Zeitschrift. Vienna: January, 1909.—"1809: A Memento on the Hundredth Anniversary of the Great War." "Artillery Patrols." "The Long-Distance Ride from Buda-Pesth to Vienna, October, 1908." "Grand Manœuvres of Foreign Armies, 1908: Germany, Switzerland, Greece" (*continued*). "The Russo-Japanese War: Criticisms and Observations" (*continued*). "The Transport of the Wounded in Difficult Country during the Night." "The Army Musketry Schools."

Kavalleristiche Monatshefte. Vienna: January, 1909.—"Our Summer Work." "More about the Cavalry at the Battle of Sandepu." "On the Employment of Cavalry in the Balkan Rocky Country." "The Supplying the Cavalry with Better Firearms." "Reform of our Prize Riding and Race Spring Meetings." "The Attack by French's Division at the Modder River, 15th February, 1900." "The History of the Cavalry Action at Stresetic." "Long-Distance Rides." "The Prize Patrol Ride of the Frankfort Polo Club, 25th October, 1908." "The Training of Scouts in the Cavalry." "Molasses Fodder." "Tactical Problems for Cavalry Officers."

BELGIUM.—*Bulletin de la Presse et de la Bibliographie Militaires.* Brussels: 31st December, 1908.—"The German Army Field Service Regulations of the 22nd March, 1908" (*continued*). "Foreign Military News."

15th January, 1909.—"Table Showing the Naval and Military Estimates of the Principal European Powers for 1908." "The German Army Field Service Regulations of the 22nd March, 1908" (*continued*). "The Modern Military Instructor." "Defence and Attack of Fortified Field Positions."

31st January. — "The German Army Field Service Regulations of the 22nd March, 1908" (*continued*). "The Modern Military Instructor" (*continued*). "The Defence and Attack of Fortified Field Positions" (*continued*).

CHILI.—*Memorial del Estado Major del Ejército de Chile.* Santiago de Chile: October, 1908.—Not yet received.

FRANCE.—*Journal des Sciences Militaires.* Paris: 1st January, 1909. —"Our Programme." "The Organisation of the Infantry and Artillery" (*continued*). "Souvenirs de Casablanca: The Battle of the Rfakha (29th February, 1908)," (*concluded*). "The Decisive Attack" (*concluded*). "Extra-Regimental Military Training." "The Infantry Machine Gun: Its History, its Tactical Employment" (*concluded*).

15th January. — "The Organisation of the Infantry and Artillery" (*concluded*). "Some Ideas on the Instruction of an Infantry Regiment" (*continued*). "Physical Training." "The *Rôle* of Cavalry in Scouting, Covering, etc." "The Cyclist Company of the 4th Battalion of Chasseurs at the Autumn Manœuvres of the 20th Corps."

Le Spectateur Militaire. 1st January, 1909.—"The Social Character of the Influence of Napoleon I." "A Study on the Decisive Attack" (*continued*). "The Corps of Observation of the Alps in 1815" (*continued*). "The Blockade of Besançon by the Austrians, 1814."

La Revue d'Infanterie. Paris: January, 1909.—Has not been received.

Revue de Cavalerie. Paris: December, 1908.—"Letters of a Dragoon to MM. the Members of the Army Commission." "Seydlitz" (*continued*). "A Combat of Dismounted Cavalry." "The Campaign in Morocco and the Lessons of the War in Africa." "*Souvenirs* of a Captain of Cavalry, 1851-1881." "Artillery Remounts."

Revue Militaire Générale. Paris: January, 1909.—"Strategical Studies." "Sudden Attack on Fortified Places and the Attempt of the Japanese against Port Arthur." "Scouting under Napoleon and that of our Regulations." "A Study on the General Characteristics of the War in the Far East: The Losses in Manchuria and in Past Wars" (*concluded*). "Studies on the Day of the 16th August, 1870."

Revue d'Artillerie. Paris: November, 1908.—"Theory of Spring Pressure Gauges." "Firing Studies." "The Independent Collimater in the 75-mm. Gun." "Determination of Objects Concealed from View by means of the Captive Balloon."

Revue d'Histoire. Paris: January, 1909.—"The Unedited Correspondence of Napoleon I. in the Archives of the Ministry of War." "Montcalm at the Battle of Carillon, 8th July, 1758." "The Armies of the Rhine at the beginning of the Directorate (Sambre-et-Meuse, Rhine, and Moselle)." "The Services at the Rear of the Grand Army in 1806-1807." "The Battle of Busaco, 27th September, 1810." "The War of 1870-71: The Investment of Paris."

Revue Militaire des Armées Etrangères. Paris: January, 1909.—"The Russo-Japanese War" (*continued*). "The English Military Forces in 1907-1908." "The New Military Organisation of the Swiss Confederation of the 12th April, 1907."

GERMANY.—*Artilleristiche Monatshefte.* Berlin: January, 1909.—"Modern Artillery Tactics." "Mechanical Time Fuzes." "A Desire for some Changes in the Firing Regulations for the Field Artillery." "The Reorganisation of the French Field Artillery." "A New Signalling System, especially for Field Artillery." "The New Drill Regulations for the Foot Artillery." "A New French Field Gun."

Militär-Wochenblatt. Berlin: 2nd January, 1909.—"The French Fortresses of To-day." "New Trials with Power Wagons." "The Russian Army:—I. Results of the Summer Training at the Camp of Krasnoe Selo, 1908." 5th January.—"The Question of Army Reorganisation in Belgium." "The French Fortresses of To-day" (*concluded*). "The Russian Army:—II. New Mobilisation Regulations." 7th January.—"The Calamity in South Italy." "The Reorganisation of the Chinese Army." "Agricultural Instruction in the Army." "Hints for the French Interpreter Examination." 9th January.—"Two Hundred Years Ago: Report on the Crossing Over of the Brandenburg and Imperial Troops to Alsen in December, 1658." "The New French Field Gun." "The Reorganisation of the Chinese Army" (*continued*). 12th January.—"The Results of the Increase of the Army in 1907 in Germany and France." "Minor Tactics." "The Reorganisation of the Chinese Army" (*concluded*). 14th January.—"Rank List for the Saxon Army, 1909." "Use and Instruction in the Range-Finder." "News from the French Army." "Precautions and Advanced Posts against Enemy's Armoured Automobiles." 16th January.—"Initiative." "Use and Instruction in Range-Finders" (*concluded*). "The Anglo-Egyptian Army." "The Reorganisation of the Brazilian General Staff." 19th January.—"The Great Chinese Manœuvres on the Yangtse." "The Protected and Almost Protected Artillery Position in Practice." "The Sanitary State of the British Army in Case of Mobilisation." 21st January.—"Financial Preparation for War and the Carrying on of War." "Military Impressions of an Englishman on the Battle-fields of Metz." 23rd January.—Berlin Military Society Programme:—"On the Days of Frederick: A Hundred and Fifty Years Ago. The Political Situation in the Winter and Spring of 1759. King Frederick's Plan of Operations and Preparations. Cavalry Practice Ride in Turkey. The March on Audincourt and the Battle, 1870." 26th January.—"The Artillery Question in France." "One Hundred and Fifty Years Ago." "The Italian Army and the Earthquake." 28th January.—"Prince Bülow and his Time." "Volunteer Troops for Pro-

tection of our Coast and Fortifications on our Great Lines of Communication." 30th January.—Berlin Military Society (Lecture):—"French Views on the Use of Artillery." "An Opinion on our Expenditure on our Land and Sea Forces." "Extracts from the English Veterinary Report."

Internationale Revue über die gesamten Armeen und Flotten. Dresden: January, 1909.—"Military and Naval Intelligence from Belgium, France, Germany, Holland, Italy, Japan, Norway, Austria-Hungary, and Russia." *Supplement* 103.—"A Glance at the Kaiser Manœuvres in the Reichsland, 1908." *French Supplement* 118.—"The Defence of Coasts and Harbours, from the Lessons of the Russo-Japanese War." "Improvements made in the Food of the German Army." "To-day and the Great War." "The Use of Balloons and Dirigibles in the Navy."

Jahrbücher für die Deutsche Armee und Marine. Berlin: January, 1909.—"Undirected Section Fire." "Value of the Experience gained by the Defence of Port Arthur for the Development of the Fortress." "Airships." "Group Columns and Company Columns." "The Increase of the French Field Artillery." "The Military Efforts of Prussia under Frederick the Great and those of the German Empire." "New Organisation of Military Education in Prussia." "Disciplinary Punishments for Persons on the Non-Active Lists."

ITALY.—*Rivista di Artiglieria e di Genio.* Rome: October, 1908.—"Some Considerations regarding the Conduct of Field Artillery Fire." "About Military Psychology." "On the Employment of Machine Guns in Field Warfare." "Artillery Practice in the Open Country." "Indirect Laying by means of a Magnetic Declinator in Field Batteries." "Searchlights."

Rivista Militare Italiana. Rome: 16th November, 1908.—"Tactics and Tactical Formations in Contemporary Military Literature" (*continued*). "Indirect Rifle Fire." "Military Risks and the Law relating to Workmen's Accidents." "The Instructional and Experimental Farm of the Presidency of Rome." "Military Action in our Colonial Policy" (*concluded*). "The Problem of Cavalry and Cyclists in Italy" (*concluded*). "Combined Manœuvres between the Army and the Navy." "Examples of the Use of Internal Lines of Navigation in Military Operations." "On the Theoretic Division of the Military Art." "What we must and must not Teach the Soldier."

PORTUGAL.—*Revista de Engenheria Militar.* Lisbon: November, 1908.—"The Apprenticeship of Engineer Officers for the Rank of Captain." "Fortification in the Defence of the Country." "Some Projects and Works Executed in the Province of Mozambique during the last nine years" (*continued*). "New Field Service Regulations of the German Army."

Revista de Infanteria. Lisbon: January, 1909.—Has not yet been received.

SPAIN.—*Memorial de Ingeniéros del Ejército.* Madrid: December, 1908.—"Construction of Economical Reservoirs" (*concluded*). "Use of the Ballistic Galvanometer" (*concluded*). "Spanish Science."

Revista Técnica de Infantería y Caballería. Madrid: 1st January, 1909.—"Organisation of the Infantry." "The Great Captain." "The Cavalry at Wafangou." "Report on the Musketry Course by Infantry First Lieutenants at the Central Musketry School in 1907" (*continued*). "Clausewitz" (*continued*). "Age in the Higher Ranks for Command in Armies: France."

15th January.—"Age in the Higher Ranks for Command: Germany" (*continued*). "The Battle of San Juan, 1898." "Barr and Stroud Range-finder for Machine Guns." "Report on the Musketry Course by Infantry First Lieutenants at the Central Musketry School in 1907" (*continued*). "Clausewitz" (*continued*). "The Tactical Tradition of our Army."

Revista Científico-Militar y Bibliotéca Militar. Barcelona: 10th January, 1909.—"1908: Text Books." "Instruction of Infantry." "Japanese Tactical Methods." The English Army in the War of Independence."

25th January.—"Dirigibles in War." "Field Fortification and its Fundamental Element, Shelter Trenches." "Patrol Service." "Field Artillery and the Russo-Japanese War." "Telephonic Communication on the Field of Battle."

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: January, 1909.—"Swiss Emigration." "Armed Cement in Fortifications." "Infantry and Cavalry Machine Guns." "Krupp Field Guns." "The Perino Machine Gun."

NOTICES OF BOOKS

The Historical Records of the 5th (Royal Irish) Lancers. By Major WALTER T. WILLCOX, 3rd Hussars, late Captain 5th Lancers. (A. Doubleday & Co.) London, 1908.

In a few brief introductory remarks, Major-General T. A. Cooke, honorary colonel of the 5th Lancers, points out the value of the Historical Records of their regiments to officers, non-commissioned officers and men, and how essential it is that all ranks should be conversant with these Records in order to gain that *esprit de corps* with which it is so important that all ranks should be imbued, and he pays a fitting tribute to the manner in which Major Willcox has accomplished his task. The author, who holds that the first historical study of every young officer should be the history of his own regiment, has certainly succeeded in making a very interesting volume out of the records of the Royal Irish Lancers. The difficulties in his way were considerable, for the history of the Royal Irish was an unusual one, for, when raised in 1858, it took over the place, the titles, and the traditions of that historical and unfortunate old regiment, the 5th Dragoons, which was disbanded in 1799 "for an act of presumed delinquency" by an order of King George III., who further decreed that its place in the Army should remain a blank for all time as a

standing reproach. Her late Majesty, however, reversed the decision, and the present fine regiment was brought into existence. The old regiment was originally raised in 1689 from the Inniskilling forces which were then engaged in the final struggle in Ireland between William of Orange and King James, and was first known as Wynne's (Enniskillen) Dragoons. The regiment took part in the fighting round Derry, and also at the battle of the Boyne, of which the author gives an interesting description, with the traditionary account of the manner in which that fine old soldier, the Duke of Schomberg, met his death, as well as of the further operations which ended with the siege and surrender of Limerick and the collapse of the war in Ireland.

In 1694 the regiment was embarked for Flanders, where it served with distinction, forming part of the allied armies under the command of King William in the campaign against the French under the Marshals Luxemburg and Villeroy, and the Prince de Vaudemont. In 1695 its designation was changed to that of Ross's Dragoons, on the death of Colonel Wynne, then a brigadier, who was mortally wounded in the action at Moorlede on the 14th June of that year, when the command of the regiment was conferred by the King on Colonel Ross, its lieut.-colonel, by whose name it was afterwards known. In 1697 it returned to Ireland on the signing of the Peace of Ryswick. In 1701 Ross's Dragoons embarked for the Netherlands, on war again breaking out with France, and joined the allied army under the Duke of Marlborough, taking part in the various campaigns which followed. In 1704 Queen Anne, as a reward for its services, bestowed upon the regiment the title of The Royal Dragoons of Ireland. At the battle of Blenheim it greatly distinguished itself, and three kettle-drums which it captured were directed by the Duke of Marlborough to be carried at the head of the Royal Dragoons of Ireland, while as a further mark of favour three additional troops were ordered to be raised and put upon the establishment. After Blenheim the regiment took part in the battles of Schellenberg, Ramillies, Oudenarde, and Malplaquet, and at Ramillies, in the pursuit of the French forces, with the Scots Dragoons, it came up with and captured the entire King's Regiment (Regiment du Roi), "of whom, having killed many, the rest threw down their arms and begged quarter, which was generously granted." In 1713 peace was at last concluded on the signing of the Treaty of Utrecht, when the regiment was brought home and quartered in Ireland. Although it has sometimes been stated that the regiment took part in the campaign of 1743-48, and was present at Fontenoy, Major Willcox can find no record showing that that was the case, while there is reason to believe that it was still in Ireland at that time. In 1752 the title of the regiment was changed from the Royal Dragoons of Ireland to that of the 5th Royal Irish Dragoons.

In 1798 the rebellion in Ireland broke out, towards the close of which occurred the unfortunate incidents which led to the disbandme t of the regiment. The army in Ireland appears at that time to have been thoroughly undisciplined and demoralised; so much was this the case that Sir Ralph Abercromby, on assuming the command in February, 1798, issued the following scathing General Order :—"The very disgraceful frequency of courts-martial and the many complaints of irregularities in the conduct of the troops in this Kingdom have too unfortunately proved the army to be in a state of licentiousness which must render it formidable to every one but the

enemy." The regiment appears, however, to have behaved well, and on more than one occasion found the opportunity of maintaining its high reputation, showing great gallantry and much self-sacrifice, and it was not until the summer of 1799, when the rebellion was almost at an end, that trouble came and brought such disaster in its train. A number of recruits had enlisted in the 5th with the intention of acting in concert with a party of rebels in attacking a force of troops engaged in stamping out the last dying embers of the rebellion. The plot was discovered in time; but there had been much desertion in the regiment, and some of the men were believed to have been imbued with the spirit of sedition and to have taken the oath of the United Irishmen. On the report of the Lord Lieutenant, who only recommended the removal of the regiment from Ireland, the King ordered its disbandment—a sentence which was carried out at Chatham on the 10th April, 1800, in spite of all efforts to have the sentence reversed, which in all the circumstances, and viewing the regiment's past record even during the troublous times of the rebellion, seems to have been unnecessarily harsh treatment not altogether merited.

For fifty-nine years the name of the regiment was absent from the *Army List*, and then on the 9th January, 1858, it was announced that the Queen had cancelled the Order of 9th April, 1799, disbanding the 5th Royal Irish Regiment of Dragoons, and the regiment was re-raised under the title of the 5th (or Royal Irish) Regiment of (Light) Dragoons (Lancers), and ordered to be clothed and equipped as Lancers, and to assume the motto "Quis Separabit," in addition to the harp and crown which were formerly on the standard and appointments of the 5th Dragoons. There was no lack of recruits, and by the 21st of May the reorganisation of the regiment was fairly completed. The regiment served in India from 1863 to 1874, and in 1882 was allowed to assume the old battle honours, "Blenheim," "Ramillies," "Oudenarde," and "Malplaquet," on their appointments. It took a notable part in the Nile Expedition, 1884-85, furnishing a detachment of officers and men to the heavy division of the Camel Corps, and also took part in the Suakim Expedition of 1885, including the fighting at Hasheen and Tamai. In 1888 the regiment again embarked for India, and formed part of the force ordered from India to Natal before the outbreak of the war in 1899. It greatly distinguished itself at the battle of Elandslaagte, as well as at the fighting at Wagon Hill, and generally in the defence of Ladysmith. After the relief of that town the regiment advanced at first with Buller's column and then did further good work under Smith-Dorrien and in Cape Colony until the war came to an end, when it returned to England.

Major Willcox has managed to compress a considerable amount of interesting information in regard to the war in Ireland and the campaigns under William III. and Marlborough, in the very brief *résumé* that the nature and compass of his work has allowed him to make. There are also a number of capital illustrations in colour, and some excellent battle plans and maps, besides some portraits and photographic groups, and the author is to be heartily congratulated on having produced an attractive and interesting work, which is not only a notable addition to the long list of Regimental Records, but should prove of interest to many others besides those connected, either in the past or at the present time, with the 5th (Royal Irish) Lancers.

PRINCIPAL ADDITIONS TO LIBRARY FOR JANUARY, 1909.

Henry Pelham, Fifth Duke of Newcastle, 1811-1864. By JOHN MARTINEAU. 8vo. 12s. (John Murray.) London, 1908.

Napoleon and the Archduke Charles.—A History of the Franco-Austrian Campaign in the Valley of the Danube in 1809. By F. LORRAINE PETRE. 8vo. 12s. (John Lane.) London, 1909.

Foundations of Reform. By *The Times* Military Correspondent. 8vo. 10s. 6d. (Simkin, Marshall & Co.) London, 1908.

The Panmure Papers. By FOX MAULE, Baron PANMURE. Edited by Sir George Douglas and Sir George D. Ramsay. 2 vols. 8vo. 24s. (Hodder & Stoughton.) London, 1908.

Military History for Examinations in 1909—*Questions on Franco-Prussian War in* 1870, *from 15th July to 18th August.* By Lieut.-Colonel H. M. BRUNKER. Crown 8vo. 1s. (Presented.) (Foster, Groom & Co., Ltd.) London, 1909.

The History of the Second Dragoons (Royal Scots Greys). By E. ALMACK. Royal 4to. 52s. 6d. (Alexander Moring Ltd.) London, 1908.

The Growth of Nationalities. Vol XI. Cambridge Modern History. 8vo. Cambridge, 1909.

Effects of War on Property. By ALMA LATIFI. With a Note on Belligerent Rights at Sea, by J. WESTLAKE. 8vo. 5s. (Presented.) (Macmillan & Co., Ltd.) London, 1909.

The Franco-German War, 15th July—18th August, 1870. By J. H. ANDERSON. 8vo. 3s. (Presented.) (Hugh Rees, Ltd.) London, 1909.

Hydrographical Surveying. A description of the Means and Methods Employed in Constructing Marine Charts. 2nd and Revised Edition. By Rear-Admiral Sir W. J. L. WHARTON. 8vo. 18s. (John Murray.) London, 1898.

The Territorial Force. A Manual of its Law, Organisation, and Administration. By H. BAKER. 8vo. 5s. (Presented.) (John Murray.) London, 1909.

Aerial Warfare. By R. P. Hearne. 8vo. 7s. 6d. (John Lane.) London, 1909.

The Indian Mutiny, 1857. By Captain F. R. Sedgewick. 8vo. 5s. (*Presented.*) (Foster, Groom, & Co., Ltd.) London, 1909.

Territorial Force Circular Memorandums, 1908-09. Fcap. folio.

Aldershot Military Society :—

99. Major C. E. D. Budworth : *Tactical Employment of Artillery as Evolved on the Practice Ground and from the Experiences of Modern War.* 1908.

La Reorganisation de l'Artillerie. By J. Reinach. Crown 8vo. 2s. (Henri Charles-Lavauzelle.) Paris, 1908.

Le Haut Commandement des Armées Allemandes en 1870. By Le Lieut.-Colonel Rousset. Crown 8vo. 2s. 6d. (Plon-Nourrit et Cie.) Paris, 1908.

Ruwenzori: An Account of the Expedition of H.R.H. Prince Luigi Amadeo of Savoy, Duke of the Abruzzi. By F. de Filippi. 8vo. 31s. 6d. (Archibald Constable & Co., Ltd.) London, 1909.

Famous Duels of the Fleet. By H. B. Money Coutts. Crown 8vo. 6s. (William Blackwood & Sons.) London, 1908.

My African Journey. By Rt. Hon. Winston L. S. Churchill. Crown 8vo. 5s. (Hodder & Stoughton.) London, 1908.

In Search of a Polar Continent, 1905-07. By A. H. Harrison. 8vo. 12s. 6d. (Edward Arnold.) London, 1908.

The County Lieutenancies and the Army, 1803-1814. By the Hon. J. W. Fortescue. 8vo. 10s. (Macmillan & Co., Ltd.) London, 1909

A British Officer in the Balkans. By Major P. E. Henderson. 8vo. 16s. (Seeley & Co,. Ltd.) London, 1909.

Naval Administration and Warfare. By Captain A. T. MAHAN, U.S.N. 8vo. 7s. 6d. (Sampson Low, Marston & Co.) London, 1908.

The Book of War. Translated from the Chinese by Captain E. F. CALTHROP. Crown 8vo. 2s. 6d. (John Murray.) (London, 1908.

Naval Warfare. By FREIHERR C. VON MALTZAHN. Translated from the German by J. C. MILLER. Crown 8vo. 2s. (Longmans, Green & Co.) London, 1908.

RECENT PUBLICATIONS OF MILITARY INTEREST.

COMPILED BY THE GENERAL STAFF, WAR OFFICE.

JANUARY, 1909. PUBLISHED QUARTERLY.

Communicated by the General Staff and reprinted by permission of the Controller of His Majesty's Stationery Office.

CONTENTS.

PAGE.

Part I. Books 274

PREFATORY NOTE.

This Pamphlet will be issued quarterly, in April, July, October and January. Its purpose is to draw the attention of Officers to British and Foreign publications of Military interest which are likely to assist them in their professional work. Copies of the pamphlet will be distributed to the Headquarters of Commands, Educational Establishments, Units and Reference Libraries.

PART I.

BOOKS.

NOTE.—1. *When the price is not given in Part I., it is not known.*
2. *In Part I., books whose titles are given in foreign languages, as well as in English, are published in those languages, and are not translated.*

HISTORICAL.

From Island to Empire. By J. S. C. Bridge, with an introduction by Sir Cyprian Bridge. 343 pp., with index and maps. 8vo. London, 1908. Chatto and Windus. 6/-.

This volume contains a most excellent outline of the growth and consolidation of the British Empire from the commencement of Queen Elizabeth's reign up to the conclusion of the late South African War.

It is divided into twelve chapters dealing separately with the operations which took place (often concurrently) in different parts of the world. Commencing with the early struggles with Spain and Holland and the wars of Marlborough, the author passes on to the situation in America, the Seven Years' War, and the conquest of Canada. He then devotes one chapter to the rise of the Empire in India, and three more to subsequent events in India up to the end of the Indian Mutiny. The War of American Independence occupies two chapters, and Nelson and Napoleon, Egypt and South Africa are allotted one chapter each.

In a book of this size it is impossible to deal fully with each phase of history in a period extending over three and a half centuries, but the salient points have been described in sufficient detail to give a very good general idea of the whole, and it forms a succinct history in which the interest is maintained throughout, and the necessity for co-operation between the Navy and Army is fully brought out.

The author hopes that readers of the book may be induced to proceed with the study of those authoritative works to which he frequently makes reference in the text, and this is by no means unlikely, as interest is sure to be aroused in all who read it.

The index is good and sufficiently full to be of considerable use for reference purposes, and a chronological table of events at the commencement of the book is a useful adjunct.

The Campaign of 1805 in Germany (La Campagne de 1805 en Allemagne). Historical section of the French General Staff. 770 pp., with 15 maps. 8vo. Paris, 1908. Chapelot. 17/6.

This volume deals at considerable length with Napoleon's strategy after the capitulation of Mack at Ulm; it describes the operations against Kutusow, which culminated in the defeat of Mortier by superior numbers at Dürrenstein, and shows how the Russian leader succeeded in frustrating Napoleon's attempt to crush his army. Immense care has been taken to obtain the necessary documentary evidence, with the result that the work is complete and of great historical value.

The period of the French occupation of German soil (Die Franzosen-Zeit in Deutschen Landen). By Friedrich Schulze. 2 vols. Vol. 1. 333 pp. Vol. 2, 379 pp., with numerous plates and illustrations. Leipzig, 1908. 8vo. Voigtländer. 18/-.

These volumes should prove of greatest interest to students of history. The book is not a continuous narrative, but rather a succession of scenes, covering the momentous period of 1806-1815, described by eye witnesses or contemporary writers, and illustrated by plates, sketches, and facsimile documents, drawn from a vast number of sources. The result is to give a vivid and interesting picture of the chief incidents of the period in question.

Waterloo (Waterloo). A French translation by General Goiran of the Italian book by General Albert Pollio, General Officer Commanding 25th Infantry Division, Italian Army. 640 pp., illustrated by photographs. 8vo. Paris, 1908. Lavauzelle. 9/6.

This is a careful study of the Waterloo campaign, which the author has evidently done his best to keep unbiassed. The volume shows clearly that most of the information has been derived from French sources, and leads one to suppose that the author is of opinion that British, Dutch, Belgian, and Prussian sources are untrustworthy, as they all seek to magnify the part played by the troops of their own nation in the great victory; possibly also General Pollio knows French better than the other languages, and has found it easier to devote his attention to the French literature on the subject.

The author evidently has a very high admiration for Napoleon, and has come to the conclusion that the success of the allies in the Waterloo campaign was due more to good fortune than to skill, either in strategy or in tactics. He looks upon the Duke of Wellington as a stubborn fighter and cool leader, but apparently has a poor opinion of his powers as a strategist. In his criticisms on the battle of

Waterloo, General Pollio hardly gives sufficient credit to the British infantry, whilst his admiration for the French troops, fully justified as it is, rather tends to warp his judgment with reference to their opponents. In speaking of the numbers at the disposal of Napoleon and Wellington respectively, he does not give sufficient weight to the fact that the Anglo-Dutch army was a heterogeneous mixture of four nations, of whom a fairly large proportion had little interest in the struggle; whilst the French troops consisted of seasoned veterans, under famous generals, fighting under the eye of their beloved Emperor, who was staking everything on the success of this last battle in his career.

The translation is good and accurate, and the French is easy to read.

The Campaign of 1815 in the Netherlands, Vol. I., Quatre Bras (La Campagne de 1815 aux Pays-Bas). By Col. de Bas, Director of the Historical Section of the Dutch General Staff, and Col. Count T'serclaes de Wommersom, of the Belgian General Staff. 548 pp. 8vo. Paris, 1908. 18/-.

This book is a plea for a fuller recognition of the part played by the Dutch-Belgian troops in the Waterloo campaign. The authors, who have had access to many little-known documents, remark that it has become traditional to depreciate the valour of their countrymen in this campaign, and that recent historians have repeated the calumnies of earlier writers. The book commences with an account of the sufferings endured by Holland and Belgium under the rule of the Republic, and later by Napoleon, thereby showing how little cause the inhabitants of these countries had to be in sympathy with France.

The history of the various corps of the Dutch-Belgian army is given in detail, and the difficulties of organising the new army in 1813-14, with the limited financial resources at the disposal of the government, are described. Coming to the events of the 100 days, much space is devoted to the consideration of the situation of the allied armies on the 14th and 15th June, 1815. The authors, without reflecting upon the sagacity of Wellington, for whose skill and ability they express the greatest respect, evidently consider that the Duke adhered too long to the view that Napoleon's main movement would be towards the British right. They hold that the initiative of General Perponcher in marching to Quatre Bras on the night of the 15th-16th in opposition to the orders directing him to concentrate on Nivelles, was mainly instrumental in repairing the mistake, and preventing the interruption of Wellington's concentration. The book concludes with a detailed account of the battle of Quatre Bras, and of the part played by the Dutch-Belgian troops in that engagement.

History of the French Colonial Army. The Campaign in Mexico (1862-1864) (Historique des troupes coloniales. Campagne du Mexique). By Capt. Vallier. 182 pp., with 3 maps and 38 illustrations. 8vo. Paris, 1908. Lavauzelle. 3/-.

An account of a little-known campaign, written in an attractive style, and furnished with good illustrations.

Grant's Campaigns. The Wilderness and Cold Harbor. By C. F. Atkinson. 466 pp. 8vo. 24 maps and sketch maps. London, 1908. Hugh Rees. 7/6.

This book is "an attempt to describe the field operations of the principal Union army, directed by Lieut.-Gen. Grant from the 3rd May to 3rd June, 1864." Lee and Lee's army are referred to as "the enemy," and the Confederate movements are introduced only so far as they are necessary to explain the Federal operations. It appears to be a most painstaking summary of the *Official Records*, and of some half-dozen books and a number of articles by Northern writers, which cover the short period dealt with.

The facts have good authority for them, but the strategical and tactical comments should not be accepted without investigation.

The work is exceedingly well provided with maps, some of them black-and-white reproductions of the beautiful sketches in the *Atlas* accompanying the *Official Records*, and others constructed by the author to show the conjectural position of the troops at various dates.

Grant and Lee in Virginia. By Lieut.-Col. H. M. E. Brunker. 63 pp. 8vo. London, 1908. Foster Groom. 3/-.

A summary of the operations in May and June, 1864, and, if read in conjunction with fuller accounts of this campaign, should assist officers in preparing for the Military History Examination for Promotion, which is the object of the book. The sketch maps are clear.

Four Years under Marse Robert. By Robert Stiles, Major of Artillery in the Army of Northern Virginia. Third Edition. 368 pp. 8vo. New York, 1904. The Neale Publishing Co. 8/-.

Major Stiles' reminiscences of the Civil War have already achieved a well deserved popularity. His picture of War, from the personal point of view, is drawn with the sure hand of one who has witnessed what he relates, and with the balanced judgment of a mind which has long pondered its subject.

After the first battle of Manasses, the author enlisted in the Richmond Howitzers, and from that day till 6th Aril '65, when he was taken prisoner at Sailor's Creek, he served with the army of Northern Virginia. He was present at the battles of Williamsburg and Seven Pines, and throughout the Peninsular campaign, but was not at the Second Manasses or Sharpsburg. His artillery section, which had been sent to Richmond after Malvern Hill to be re-equipped, joined the main army in time to take part in the battle of Fredericksburg and bore its share in all Lee's subsequent battles till the end of June, '63, when the whole battalion was transferred from Petersburg to the lines between the Appomatox and the James, and remained there virtually without firing a shot till 2nd April, '65. Promoted to the rank of major in December, '64, the author was posted to the battalion of heavy artillery at Cheffin's Bluff, and commanded it during the retreat from Richmond. His military career closed amid a blaze of glory, for after the surrender of the Confederate forces at Sailor's Creek, General Ewell called him up and publicly congratulated him upon the record which his battalion had made in that engagement.

His whole service was passed with the artillery, though he received his first commission in the engineers, and "was actually advanced one grade in engineer troops for meritorious service in artillery." He claims for the artillery of Lee's army that "in proportion to its numbers it furnished perhaps more officers below the rank of general who were conspicuous for gallantry and high soldiership than either of the other two arms," and he adduces some very good reasons to show why this was so. Incidentally he remarks that during the latter part of the war an infantry company in the army of Northern Virginia did not average over fifteen or twenty men. During the campaign of '64 he acted as Adjutant to Cabell's battalion and consequently his knowledge of that campaign is more comprehensive and detailed than of any other. Of special interest is his account of the Bloody Angle at Spotsylvania. On the 12th May his battalion was put in at the left base of the salient, but he differs from the majority of writers in maintaining that, though the fire was at times heavy, yet at no time in front of his position did it approximate the intensity of the fire during the great attack at Cold Harbor. It appears from this narrative that, had not Grant, after Cold Harbor, crossed the James, Lee would have attacked him, and Early had been appointed to lead the attack, when the operations of Hunter in the Shenandoah Valley necessitated the abandonment of the plan.

Naturally Lee is the hero of the book, and from its pages can be realised something of the intense devotion with which the army of Northern Virginia regarded their great leader. Next to Lee, Jackson seems to have commanded the author's greatest admiration, though he never served under him. He describes an interview, of which he was, perhaps, the only witness, between Lee and Jackson during the Peninsular campaign, which closely resembles the well-known interview between the same generals preceding Jackson's flank march during the Second Manasses campaign. Vivid pictures are also given of D. H. Hill with his monomania on the subject of personal courage, and of Jubal Early, Lee's trusted lieutenant, in spite of his eccentricities.

One of the last chapters of the book is entitled "Fatal Mistake of the Confederate Military Authorities." This mistake was their failure to realise that promotion is "the informing spirit of an army." Not even Lee, himself, had power to confer promotion on the field. It had to come through the War Department, and the process was slow. Where gallantry was officially recognised, the promotion lagged and followed so far behind that the heroic deed had by that time been forgotten, and the moral effect was almost, if not entirely, lost. The author's own case is typical. He was recommended for promotion for gallant conduct on 12th May, '64, but the promotion did not come till more than six months after, and the commission ranked not from the date of the engagement (of which not the slightest mention was made) but from the date of its issue. The attempt of the Government to establish badges of distinction and a roll of honour was rendered futile by the absurd provision that the recipients of such honours were to be selected by the men themselves. The author also condemns the system, which was first adopted, of allowing the soldiers to elect their own officers. The monstrosity of such a mode of selection is sufficiently proved, in his opinion, by the fact that one Virginia regiment successfully protested against the assignment of Jackson to command it. In spite of official discouragement Lee's army attained a high standard of discipline, as is admitted by Gen. Hooker, who attributed to it his defeat at Chancellorsville. Not the least of the influences promoting discipline and order was probably the religious revival which took place in the winter of '64 at Fredericksburg.

Grant's Cavalry in the Gettysburg Campaign. By J. S. Mosby. 222 pp., with portraits and map. 8vo. New York, 1908. Moffat, Yard. 8/4.

This work is of a controversial nature in which the author undertakes to clear General Stuart of the charge of having been the cause of the failure of the Gettysburg Campaign.

The first chapter deals with the cavalry battle of Brandy Station or Fleetwood, with regard to which the author makes the following important points:—

1. Stuart was not meditating a raid, as stated by Hooker and Pleasonton. He had massed his cavalry in Culpepper County partly to screen Ewell's movement to the Shenandoah Valley, partly to guard against a repetition of the Stoneman raid, and partly to get the benefit of the rich pasture grounds in that neighbourhood.
2. Pleasonton crossed the Rappahannock to fight Stuart, did fight him, and was fairly beaten. The author maintains that to cover up his defeat Pleasonton invented the theory that he was sent to make a reconnaissance in force and voluntarily withdrew when he had effected his purpose. In support of this view several facts are quoted.
3. Pleasonton gained no information worth having by his expedition. The author justifies this statement by a reference to significant movements of the enemy on days immediately succeeding the cavalry battle, all of which remained undiscovered by Pleasonton.

The rest of the book is devoted to the Gettysburg campaign. The author bases his case upon alleged discrepancies between Lee's two reports and the inaccuracy of them both, when compared with the correspondence and orders since published. The discrepancies, however, do not seem to amount to very much. Both regard the absence of cavalry as the cause of the premature collision of the 1st July. The author attributes the failure of the campaign, on the other hand, not to Stuart's absence but to Heth's presence at Gettysburg. He attacks both that General and his corps commander, A. P. Hill, and even goes so far as to impugn the veracity of Lee's second report. The arguments with which Colonel Mosby supports his case are undeniably strong and entitled to the closest attention, but are unmistakably those of a strong partisan and not of an unbiassed critic, they cannot, therefore, be accepted without reserve; nevertheless, the book assists materially to elucidate the campaign.

Grant, Lincoln, and the Freedmen. Reminiscences of the Civil War, with special reference to the work for the Contrabands and Freedmen of the Mississippi Valley. By John Eaton, Brigadier-General, in collaboration with Ethel Osgood Mason. 320 pp. 8vo. London, 1907. Longmans, Green. 9/-.

When Grant in the latter half of '62, after the battle of Corinth, advanced into the State of Mississippi, he found himself in a region densely populated with negroes, who flocked in vast numbers to his camps. Out of pity for their miserable plight and in order to protect his own army against the contagion and demoralisation with which it was threatened by such an influx, Grant, on the 11th November, appointed the Rev. J. Eaton, chaplain of the 27th Ohio regiment, to take charge of all "contrabands" in his Department. Of the way in which that duty was performed the author has given a clear and deeply interesting account. The negroes were fed, clothed, and housed. The able-bodied were set to various kinds of work. The rate of remuneration was fixed by the Superintendent. The cost of providing for the refugees constituted a first charge upon their earnings, and the able-bodied were taxed for the benefit of those less fortunate. This experiment of converting the negro into a wage-earning labourer proved successful. A report drawn up in April, 1863, shows that out of 22,000 "contrabands" who had thus far come within the lines of the Department, the number of those who received rations which they had not earned did not exceed 6,600, and of these about one-third were receiving only half-rations. It was calculated that the State was saving 40,000 dollars a month by getting the work done by coloured instead of white labour. Another report shows that during 1863 no less than 113,600 freedmen passed through the hands of the Superintendent and his assistants; and these had not merely their physical needs supplied, but also a fairly successful attempt was made to provide them with the means of education. Of the above number 13,200 had been under instruction; about 4,000 had learned to read fairly well, and about 2,000 to write. In this year the status of the negro was improved; from being a labourer he became a soldier. The author was appointed colonel of a coloured regiment, which was raised as a kind of Home Guard, consisting of negroes who were incapacitated for active service in the field, but were capable of protecting the plantations and other enterprises which were being carried out under his supervision. In 1865 he was appointed Brevet Brigadier-General of Volunteers for "valuable service during the war."

The situation was sadly complicated by the appearance upon the scene of the Treasury agents, and the evils of introducing into the same field two agencies with imperfectly differentiated functions were made plain. Eventually the military authorities gained the upper hand, and the Freedmen's Bureau was established as a branch of the War Department.

In the discharge of his official duties Gen. Eaton was brought into close contact with Lincoln, and still more with Grant. He states in the preface of his book that one of his chief objects in publishing it is to "give a faithful picture of the great President and the great General." Both reposed considerable confidence in him, and Lincoln selected him in 1864 for the delicate task of sounding Grant as to his intentions in case the Republican nomination for the Presidency were offered him.

The author stoutly champions Grant against the charge of intemperance, and shows how inadequate were the foundations on which the accusation rested. He himself never saw the General touch alcohol.

Miss Osgood Mason supplies an interesting biographical sketch of Gen. Eaton, who died in February, 1906, very shortly after the completion of his book, in which she lays stress upon the importance of his work as United States Commissioner of Education from 1870 to 1886 and Superintendent of Schools in Porto Rico, 1899.

On page 47, line 9, Butler's successor at Fortress Monroe is named Gen. Wood. This is apparently a printer's blunder for "Wool."

The True Story of Andersonville Prison. A Defence of Major Henry Wirz. By J. M. Page, late 2nd Lieutenant, Sixth Michigan Cavalry, in collaboration with M. J. Haley. 248 pp. 8vo. New York, 1908. The Neale Publishing Co. 8/-.

The writer was taken prisoner in September, 1863, and spent the next fourteen months in Southern prisons, half that time in Andersonville. He now publishes his experiences as a reply to the violent denunciations which preceding historians of Andersonville prison have heaped upon its unfortunate commandant. He was brought into rather close contact with Wirz, and from personal knowledge maintains that he was a genuinely humane man, who did his utmost to alleviate the terrible sufferings of the unhappy prisoners. He does not minimise these sufferings, but argues that they differed only in degree from those which the Confederates endured in Northern prisons. The final responsibility he puts upon the Federal Government

which, in pursuance of its policy of attrition, refused in the summer of 1864 to make any further exchange of prisoners. When the writer entered Andersonville, in February, 1864, there were about 2,000 prisoners already confined there and the prison extended over eleven acres. By the following June the prisoners had increased to 20,000. The prison was enlarged so as to cover about twenty-one acres, but the number of prisoners went on increasing until in August, which was marked by exceptional heat, there were at least 30,000, and in that month nearly 3,000 died.

The last part of the book deals with the trial of Wirz. It is difficult to avoid the conclusion that his execution was a judicial murder. Thirteen specific charges were brought against him of having done to death, either directly or indirectly, prisoners under his charge, but in not a single instance was the name of the prisoner known, though all other details were fully set forth. In one case Wirz was not in command at the time, and in three others was absent from the prison on sick-leave.

Count Zeppelin's Reconnoitring Patrol to Schirlenhof in 1870 (Graf Zeppelin's Erkundungsritt nach dem Schirlenhofe, 1870). By A. Spinner. 75 pp., with numerous illustrations, 2 sketches and 1 map. 8vo. Strassburg, 1908. Vomhoff.

This volume is interesting as describing the fortunes of Count Zeppelin's famous reconnoitring patrol, which started from Hagenbach on 24th July, 1870, and penetrated into, what was then, French territory, as far as Schirlenhof. Count Zeppelin was at this date a Captain and a General Staff Officer. He was the first German officer to cross the frontier in the Franco-Prussian War, and now, "38 years later," as the author remarks, "he is the first German to reconnoitre the vast regions of the air."

Photographs are given of most of the other officers and men who took part in this expedition, as also of some of the Frenchmen with whom they crossed sabres.

Count Zeppelin's original sketch of the combat at Schirlenhof is reproduced, and an outline map at the end of the volume shows clearly the direction taken by the patrol.

The Last Battles and the March Home in 1878 (Die letzten Kämpfe und der Heimmarsch 1878). By Col. G. F. vom Holz. 142 pp. 8vo. Leipzig, 1908. Stern. 3/-.

This is a popular account of the last stages of the Campaign of 1878 in Bosnia and Hersegovina, and includes the fight at Mokro, on September 3rd, 1878, and the Battle of Senkoni on the 21st of the same month.

Official History of the Russo-Japanese War, Part II. Prepared by the historical section of the Committee of Imperial Defence. 164 pp., with 12 maps. 8vo. London, 1908. 5/-.

This is a continuation of the Official History, Part I. of which was published by the General Staff. It forms an advanced portion of the combined naval and military history which is in course of preparation, and deals with the operations from the battle of the Ya-lu to Liao-yang, exclusive. It contains no comments, and naval operations have been touched on only in so far as they affect the movements of troops on land.

Account to the Czar of the Russo-Japanese War (Rechenschaftsbericht an den Zaren über den Russisch-Japanischen Krieg). By General A. Kuropatkin. German authorized translation by Navi. 371 pp., including 32 appendices and a preface. 8vo. Berlin, 1908. Risel's Deutsche Centrale für Militärwissenschaft.

This work, which is published by authority, contains four chapters. The first deals with the operations up to and including the battle of Liao-yang; the second treats of fighting on the Sha-ho, the third describes the "operation" of Mukden. The fourth chapter, which bears the title "Conclusion," is also devoted in part to a discussion of the fighting around Mukden, and ends with a review of the conditions under which the war was fought, and of the results achieved.

In a preface the translator draws attention to the alleged causes of the Russian defeats, viz.:—Differences of opinion and the lack of uniform military thought. He quotes the author, who says that in every rank there was a lack of men endowed with true soldierly qualities and with the iron nerves which would have enabled them to endure, without any weakening of purpose, fights which continued for days.

In Chapter I. we are told that Alexieff originally considered 16 battalions of infantry as sufficient for the defence of the Kwantung Peninsula. This number was afterwards increased to 36, and after Makaroff's death the Viceroy called for early assistance from the Russian field army, since "strictly speaking Port Arthur cannot be considered as a fortress—it ought to be able to resist a sudden attack, but could hardly sustain a siege of 2 or 3 months." Stoessel concurred in these views. The Russian Commissary General at Port Arthur, unaware of the abundance of supplies in Manchuria, ordered them from Europe. General Sassulitsch excused his disobedience in fighting the Japanese on the Yalu on the grounds that he reckoned on success. The way in which Russian reinforcements were sent backwards and forwards between Hai-cheng and Liao-yang led to a hopeless mixing up of tactical units at an early period of the campaign. They were the outcome of plans, hastily formed and as hastily abandoned for offensive movements southward, towards Port Arthur, and eastward. Kuropatkin discusses these plans, and points out incidentally that paucity of transport and mountain artillery rendered the Yalu project impracticable. The

Xth Corps, which was the first to arrive from Europe, is severely criticised by the Commander-in-Chief. Many of the reservists were small and awkward, and the older men amongst them were aggrieved at being called out before younger categories. Many of the higher commanders were fresh to their posts and unfit for them. On an average, 800 men (out of 4,000) in each regiment were away from their unit. Of the courses open to him on the 18th August, viz.:—(1) to move against Oku and Nozu whilst observing Kuroki, and (2) to retreat on to the main Liao-yang position whilst opposing Kuroki with as large a force as possible, Kuropatkin chose the latter, as (1) would have led to disaster in the event of Kuroki being successful against the covering detachment. In discussing the alternatives open to him on August 21st* he refers to the spontaneous retreat of several of his subordinate generals, with the consequent probability of the Japanese right wing penetrating as far as the railway.

Chapter II. opens with a consideration of the position taken up by the Russians after Liao-yang. Amongst its disadvantages he cites:—

(1) The undue *échelonning* to the rear of his left wing due to a re-entering bend in the Hunho, east of Mukden. As a result of this, a success of the enemy on this flank would have brought him on to the Russian communications.

(2) The proximity of the Hunho in rear of the position.

(3) The fact that the enemy held the Fushun coal mines.

It was (3) especially that prompted him to undertake an offensive movement.

According to Kuropatkin, the failure of the Shaho operations was due to—

(1) Stakelberg's want of skill; the latter is alleged to have possessed a threefold superiority over the Japanese.

(2) The irresolute leading of generals commanding portions of the Western Detachment.

He recounts the views expressed by various Army Commanders at councils of war which took place between the Sha-ho fighting and Hei-keu-tai.

The report on the latter battle reveals serious defects in reconnaissance and in inter-communication between commanders.

Many pages are devoted to a discussion of Gen. Kaulbars' action at Mukden; this officer is declared to be mainly responsible for the disastrous termination of the battle. Kuropatkin accepts a due share of the responsibility for failure, since he did not insist on the formation of a sufficiently strong strategic reserve, and did not attempt to prevent the mixing up of units. A perusal of the narrative clearly shows that the breaking up of tactical units was often resorted to without any necessity.

In the final pages he alludes to the advantage which the Japanese possessed in being able to replace losses so quickly. Their efficient system of espionage is ascribed partly to the sympathy (?) of the Chinese. The national enthusiasm for the war which prevailed in Japan is contrasted with the lukewarmness exhibited in Russia. The frequent suicides amongst Japanese prisoners of war are alluded to, and three instances are quoted of parties of Japanese suffering annihilation in preference to capture during the fighting at Mukden. On the other hand, many strictures are passed upon the conduct of Russian troops in action. During the latter portion of the Liao-yang fighting the hesitation of the men to advance through the high kaoliang near the right bank of the Tai-tsu-ho was one of the factors which induced the Russian commander to desist from offensive operations in this quarter.

In the report on the Sha-ho fighting unfavourable comment is passed on the unsteadiness of portions of one army corps and on the tendency of men to quit the ranks in order to succour wounded comrades. The unsatisfactory conduct of two army corps at Hei-keu-tai is likewise mentioned.

The orders and details regarding the disposition of the forces which are given in the appendices are based on carefully compiled official data. The text, too, contains much statistical information. At the beginning of the fighting around Liao-yang the Russian Army was 350 officers and 14,800 men short of its paper strength; some companies had only 100 out of 220 bayonets. On September 16th, 670 officers were lacking. After the Sha-ho fighting 252 battalions mustered only 140,000 bayonets; 2,700 officers were wanting, the average number per battalion being 11. At the beginning of 1905 the shortage of officers had risen to 5,600.

The Russian losses at Mukden are given as 2,118 officers and 89,353 others. On the morrow of the fighting, 114 battalions of the II. and III. Army Corps averaged 144 bayonets each, but three days later the numerous stragglers who had rejoined raised this figure to 300 bayonets. The report clearly demonstrates the demoralisation which pervaded the Russian forces at that time. In several portions of the book discussions occur as to the impossibility of offensive movements, despite the numerical superiority which is admitted in some of these instances. The passive tendencies of the directing authority are betrayed throughout the report.

The book contains no map, and as the transliteration of Chinese names differs considerably from ours, British readers of the book will often experience difficulty in identifying places.

German Official Account of the Russo-Japanese War (The Yalu). Authorized translation by K. von Donat. 258 pp., 9 appendices, including 5 photographs, 6 maps in pocket. 8vo. London, 1908. Hugh Rees. 10/6.

This is a translation of the second of the series of monographs concerning the Russo-Japanese War prepared by the German General Staff. The first (of which no translation has hitherto appeared) dealt with the siege of Port Arthur.

The first chapter of this book deals with the events leading up to the war, and sketches the development of Japan into a modern state and the rise of Russian influence in Eastern Asia. The second chapter describes the theatre of war minutely.

*These dates are O.S., and 13 days must be added in comparing them with non-Russian accounts.

The third chapter contains a full review of the methods of organisation and tactical views prevailing in each of the contending armies; in the case of Japan a brief historical sketch is added. The fourth, fifth, and sixth chapters are devoted to a narrative of the operations by land and sea up to the Yalu inclusive, and a few pages of comments are added at the end. The appendices contain particulars in tabular form regarding the peace and war organisation of the opposing forces, terms of service of the Japanese army, the Russion fleet, &c.

In a preface the author mentions that the names of places are spelt the same in the text as in the German maps, which accompany it; to facilitate the comprehension of the latter, a key to the abbreviations used on the maps is given immediately after the preface. Although no doubt unavoidable, the different method of transliteration must puzzle students who are accustomed to English maps. The book contains a few minor errors. On page 96 "Bushido" is given as "chivalrous conduct in action" instead of "way of the knights" (knightly behaviour). The regiments of the 2nd Japanese Field Artillery Brigade are shown in Appendix IV. as having 6 batteries each, whereas they had 4. The 7th Japanese Divisional Artillery Regiment was composed of 2 field and 2 mountain batteries, and not 3 of each kind as shown. The translation leaves much to be desired; in many places words and sentences have a meaning which they do not possess in the original, technical terms are often inexactly rendered, and the style throughout is so foreign as to affect seriously the ease with which the book can be read. In spite of these defects the book places at the disposal of British students a mass of valuable material concerning the events with which it deals.

History of the Royal Regiment of Artillery. By Lieut.-Colonel H. W. L. Hine. 148 pp. 8vo. London, 1908. Longmans. 6/-.

This book carries on the history of the Royal Regiment of Artillery from 1815, where the book by Colonel Francis Duncan left it, to 1853. It is therefore chiefly concerned with the wholesale reductions after the Napoleonic wars; and the subsequent increase of establishment due to the representations of the Duke of Wellington in 1847.

The Record of a Regiment of the Line. By Colonel M. Jacson. 226 pp., with photographs and maps. 8vo. London, 1908. Hutchinson. 6/-.

An interesting and clearly-written account of the distinguished part taken by the 1st Battalion Devonshire Regiment in the siege of Ladysmith and in the subsequent operations in the North East Transvaal.

The Second Battalion Royal Dublin Fusiliers in the South African War. By Majors Romer and Mainwaring. 271 pp., with numerous illustrations. 8vo. London, 1908. Humphreys. 6/6.

An interesting description of the fighting and trekking in which this distinguished regiment took part in the South African War.

Written as it is purely from a regimental officer's point of view, many useful lessons may be deduced; the criticisms on "tittuping" staff officers are, however, somewhat sweeping.

The book is well got up and pleasantly written.

The Military Memoirs of Lieutenant-General Sir Joseph Thackwell, G.C.B., K.H. By Col. H. C. Wylly, C.B. 424 pp., including appendices and index. 8vo. London, 1908. Murray. 15/-.

This historical biograph is compiled from the diaries and correspondence of Sir Joseph Thackwell during the sixty years he spent in the service, supplemented by carefully selected extracts from acknowledged authorities on the military events in which he was concerned. He served in the Peninsular War and was present at Waterloo. In that battle his superior officers were killed, and in the evening it devolved upon him to lead his regiment, the 15th Hussars, in a final charge upon a square of the Imperial Guard. Two horses had already been killed under him, and during this charge he was shot through the bridle hand; nevertheless he continued to lead the charge with the reins in his teeth until another bullet shattered his left arm and brought him to the ground. He was left all night where he fell, and the following day had his arm amputated. Within ten days he was, however, riding over the battle-field, and within a comparatively short space of time was hunting in France. The next service he saw was in Afghanistan in 1839, where he commanded the cavalry, and was fortunate enough to escape the horrors of the retreat from Kabul by being sent back to India after the rout of the Afghans at Ghusnee. He served in a similar capacity in the short campaign against the Mahrattas of Gwalior and in the war against the Sikhs in 1846.

During the latter, the victory of Sabraon was due in a large measure to his leading and the gallant conduct of the troops under his command, who, after the British infantry had been checked, resolutely attacked the entrenched enemy. In the battle of Gujerat the cavalry again were mainly instrumental in obtaining the decisive victory which terminated the campaign.

At the age of seventy-three this gallant veteran tried hard, but without success, for a command in the Crimea.

As a record of a long and varied career this book is well worth reading, and not the least interesting feature is the picture it presents to us of a man of independent means with such high ideas of the obligations of a gentleman and a soldier that the whole of his life is devoted to military service, in which he carries out his duties in a punctilious and unselfish manner.

Recollections of a life in the British Army. By General Sir Richard Harrison. 363 pp., with appendix and index. 8vo. London, 1908. Smith, Elder & Co. 10/6.

An account of 48 years spent in the British Army. Compiled as it is largely from notes made at the time events occurred, many interesting details are given of the organisation and administration of the various expeditions the author took part in. These include the Indian Mutiny, the China Wars of 1859-60, the Zulu War, the Sekukuni War, and Egyptian Expedition of 1882.

The author held high appointments, such as Commanding Royal Engineer at Aldershot, General in Command of the Western District, and finally Inspector-General of Fortifications at Whitehall up to 1903.

The greater part of the book is, however, devoted to his experiences on active service, during which he held various staff appointments, the last of which was A.A.G. on the L. of C. in the expedition against Arabi Pasha. The writer does not endeavour to give a history of the campaigns he took part in, but only to recount his personal experiences; nevertheless the narrative is both interesting and instructive.

Sir Redvers H. Buller, V.C. By W. Jerrold. 270 pp., with illustrations. 8vo. London, 1908. Dalton. 2/6.

A popular account of this distinguished soldier's life and campaigns. One of the "Leaders of Men" series.

POLITICAL.

The Evolution of Modern Germany. By W. H. Dawson. 497 pp. 8vo. London, 1908. Fisher Unwin. 21/-.

Mr. Dawson, the author of this book, is a well-known authority on German questions, and has already published many important works bearing on German life and systems. A short quotation from his introduction to the book under review affords a concise insight into the scope of this valuable work.

"The title of the book sufficiently describes the aim, which the writer has in view: that of tracing the transformation of the Germany of half a century ago into the Germany which we know to-day. That transformation has been essentially economic; hence economic questions largely occupy the following pages. At the same time several other problems which closely affect the internal and external development of the Empire have been passed in review. It may be desirable—though it should not be necessary—to say that the book is not intended to have any bearing whatever upon the economic issues which exercise the British public at the present time. The chapters have been made as little technical as possible though several of them are necessarily occupied by a recital of facts and figures illustrative of industrial and commercial progress.

"The book is not intended to be either a glorification or a disparagement of Germany from the standpoint of industry and labour. It seeks to show the Germans as a trading nation just as they are; to describe their efforts, energies, successes; to tell the British readers what they ought to know and must know, if they would understand how it is that Germany has gone ahead so rapidly during recent years, not, however, by way of discouraging but of reassuring them."

France since Waterloo. By W. Grinton Berry, M.A. 375 pp. 8vo. London, 1908. Methuen. 6/-.

An interesting and rapid survey of events in the country up to the present day, showing clearly the development of the democratic idea in the people and the recuperative power of the nation.

The author does not attempt to describe any battles or campaigns in the period, but confines himself to a narrative of "the cause, meaning, intention and result" of the seven wars in which the French took part under Napoleon III.

It is a very readable book and deals briefly with the main features of general interest.

France and Germany. By Victor Meynier. 139 pp. 8vo. London, 1908. Sonnenschein. 2/-.

This historical *précis* of the political relations between France and Germany covers the period from the Treaty of Frankfort in 1871 to the Algeciras Conference in 1906, but the greater portion of it deals with the events of the last four years.

It is a useful and concise account of the events leading up to the Algeciras Conference, but the reader must bear in mind that the author is evidently playing the part of prosecuting counsel against Germany; it will also be noted that no authority is as a rule given for the many emphatic statements that are made.

Europe and the Ottoman Empire (L'Europe et L'Empire Ottoman). By R. Pinon. 603 pp., with 2 maps. 8vo. Paris, 1908. Perrin. 4/-.

This valuable work by Monsieur René Pinon is of especial interest in view of the present crisis in the Near East.

The book is divided into twelve chapters. Commencing with a review of the evolution in modern times of the Near Eastern question, the author goes on to discuss the Black Sea and the question of the Straits. Four chapters are devoted to a consideration of the Macedonian question and are followed by chapters dealing with the rivalry of the Great Powers in the Ottoman Empire; the Tabah incident and the Arab question; the Austro-Serb conflict; the rise of Bulgaria and its present importance. The two succeeding and final chapters deal with French interests in the Near East.

The Yellow Peril in the light of history (Die Gelbe Gefahr im Licht der Geschichte). By Fritz, Baron von der Goltz. 115 pp., with six plans. 8vo. Leipzig, 1907. Engelmann. 4/2.

In a preface to this work the author observes that the recent war in Eastern Asia has revived the old saying of "the Yellow Peril." "There is no doubt," he continues, "that we are situated at a turning point in the world's history. The uncontested supremacy of the white man has suffered a rude shock. Alongside him the sinewy form of the Mongol rears its head." He goes on to speculate as to whether other struggles will follow, and whether China, with its three to four hundred million inhabitants, will likewise embark on a career of world conquest.

In order to assist in the consideration of this question, he gives a brief description of the campaigns of Genghis Khan, Hulagu, Batu, Kubilai and Timur.

The succinct and vivid narrative which these pages contain is illustrated by several clearly drawn maps. At the close of the chapter dealing with Genghis Khan, is a brief sketch of the tactical methods and mechanical contrivances used by the Mongol armies.

The book will repay perusal, although the notions which prompted the author to write it may appear somewhat far fetched.

CAVALRY.

Some Thoughts as Regards a Revision of the Cavalry Regulations (Gedanken zur Neugestaltung des Kavallerie-Reglements). By General von Bernhardi. 116 pp. 8vo. Berlin, 1908. Mittler. 2/6.

This instructive book has apparently been written with the idea of moving the German military authorities in the direction of the revision of the existing cavalry regulations, which date back to 1895, and according to press reports such a revision is already in contemplation.

General Bernhardi points out that the existing regulations were drawn up at a time when conditions of warfare were widely different from what they are now, and claims that the strides which have been made in the science of war, such as improvement in firearms, perfection of technical means of communication and so forth, demand a new training book for the cavalry.

He says the campaign of 1870-71 is responsible for the present organisation of the cavalry divisions, its strength and the system of cavalry attack in several lines, but he maintains the lessons of the campaign were not rightly applied in the compilation of the 1895 drill book and its recent addenda. The cavalry division should be an elastic organisation, not necessarily fixed at three brigades. In the Franco-Prussian war, divisions varied from 16 squadrons to 36 squadrons and will do so again. The strength of the division must depend on the task assigned to it.

Owing to the demands made on cavalry for patrols, orderlies, relays, &c., brigades should be formed of 3 regiments, not 2, and the author holds that the normal organisation of a cavalry division of 3 brigades of 3 regiments each is perhaps the best, but no hard and fast rule should be laid down.

As regards dismounted fire action, he says, both the Boer and Manchurian campaigns teach us the necessity of assuming the offensive in this form of fighting, whereas the existing regulations lay particular stress on the defensive being the rule.

The principles on which the new regulations should be drawn up, according to the author, are summed up under the following headings:—Use of the ground, fighting in deep formation, co-operation of mounted and dismounted action, and the offensive when fighting on foot.

As regards drill formations, double column with deploying intervals appeals to the author. He would introduce such formations as squadron double column, regimental double column, and brigade double column. These he maintains are handier formations than those now in force.

General von Bernhardi is a great cavalry authority in Germany and it is probable his ideas will carry considerable weight.

ARTILLERY.

The Matériel and Organisation of the Dutch Field Artillery (Matériel et Organisation de l'Artillerie de Campagne Hollandaise). 21 pp., with 2 plates at end. 8vo. Paris, 1908. Berger-Levrault. -/10.

This little pamphlet is a reprint from the *Revue d'Artillerie* of November, 1907. It gives a useful summary of the Dutch Field Artillery organisation and of the new 7·5 cm. equipment.

Ehrhardt Guns (Ehrhardt-Geschütze). By R. Wille. 221 pp. and 312 pp. of appendices, with 154 photographs and sketches in text, and 4 plates at end of book. 8vo. Berlin, 1908. Eisenschmidt. 25/-.

The book is in two parts. The first part deals with the development of the field gun with barrel recoil. Pages 3-11 contain a short account of those systems in which the gun only recoils for a short distance. Pages 13-86 describes the later systems, in which the gun is allowed a long recoil. Considerable space is devoted to the Ehrhardt C/1906 field gun, of which 18 batteries were purchased by Great Britain in 1906, and to the Norwegian Ehrhardt C/1901 7·5 cm. field gun.

Part II., pp. 115-221, deals entirely with guns of Ehrhardt's manufacture. The C/1904 and C/1905 patterns are described in full detail. Then follow over 300 pages of appendices dealing with brakes, independent lines of sight, running-up springs, and the reports of various committees in Germany and other countries on experiments with Ehrhardt field guns in recent years.

Our New Field Gun (Unser neues Feldgeschütz). By Col. M. C. von Bacsány, Austro-Hungarian General Staff. Part 2, 90 pp., with 7 maps. Part 3, 81 pp., with 7 maps. 8vo. Vienna, 1908. Seidel. Part 2. 3/-. Part 3. 2/8.

Part 1 of this publication was referred to in "Recent Publications of Military Interest" for April, 1908. Each of the parts now under review contains two tactical schemes, framed with a view to bringing out the principles of the employment of quick-firing field artillery. The schemes are adapted to the organisation of the Austro-Hungarian Army, and the solutions are explained by references to parallel incidents in the Russo-Japanese War.

STRATEGICAL AND TACTICAL.

Foundations of Reform. By the Military Correspondent of the *Times*. 499 pp., with appendices and index. 8vo. London, 1908. Simpkin, Marshall. 10/6.

This book consists of a reprint of articles contributed by the author to various newspapers and periodicals between March, 1906, and July, 1908. In the first part are collected the articles in which the writer has endeavoured to point out the dangers which beset England and some of the means whereby these dangers may be averted. The second part of the book consists exclusively of papers written in explanation and support of the policy of the present Secretary of State for War.

The appendices contain full details with regard to the establishment and organisation of the Territorial Force and the Act under which it was raised and is maintained.

These interesting articles will be fresh in the memory of all who read them; nevertheless, their collection in book form serves a useful purpose, and affords an opportunity for those who have not read them of now doing so in a handy form. The index makes reference easy, and enhances the value of this excellent publication.

Preparation for War on the Coast (Kriegsbereitschaft an der Meeresküste). By Vice-Admiral Galster (retired). 19 pp. 8vo. Berlin, 1908. Verlag der *Neuen Revue*. 10*d*.

This article, a reprint from the *Neue Revue*, has been written with a view to bringing to notice the necessity for improving the North Sea coast defences for the better protection of the important commercial towns of Hamburg, Bremen, and Emden. The writer argues that the defence of the coast cannot depend on the action of the mobile fleet, but must be ensured by coast defences.

The works at Cuxhaven, he states, are insufficient for the protection of Hamburg. A subsidiary position further up the Elbe should be selected for the establishment of other works and minefields.

He points out that Great Britain has, according to him, most effectively protected her principal ports by strong defences all round the coasts of Great Britain and Ireland. In his enumeration of the British coast defences he takes into account the coast forts at Hythe and Eastbourne. It would seem probable that he lays undue importance on the value of the Martello towers.

The author further maintains that coast defences must be so strong as to make a hostile fleet chary of engaging them.

Hints for Advancing under Fire, in the Field, and for Entrenching during an Action (Winke für das Heranarbeiten im Feldkriege und das Eingraben im Gefecht). By Capt. Brandenburg. 32 pp., with numerous illustrations in the text. Strassburg, 1908. Schauberg. -/3.

In this pamphlet Capt. Brandenburg, a German infantry officer, explains certain methods of entrenching, and advancing under fire, which he has evolved after practical experiments with his own regiment.

In Part I. the author describes a method of advancing under fire, which he aptly terms "seal-crawling." The soldier lies flat on the ground with his arms extended in front of him, and, by alternately raising himself on his elbows and pushing himself forward with his toes, gains ground to the front without having to expose himself to the enemy's fire. The process is repeated, with short intervals for repose, until the next fire-position is gained.

Part II. explains how cover may be obtained with a minimum of exposure. The men work in pairs, both lying down, one man firing, while the other scoops out the earth under his own body to a depth of 6 inches, throwing the earth well to the front so as to form a low parapet 4 feet wide, and gradually working his way *backwards* so as to form a shallow trough the length of his body. The men then change duties, the man who was digging resuming his rifle and firing, while his comrade widens the excavation for himself in the same manner as above described.

The remainder of the book is devoted to showing how more effective cover can be gained when the men are not actually under fire.

Tactical Principles. By J. Bürde. 96 pp. 8vo. London, 1908. Rees. 3/6.

The author traces briefly the changes in tactics from the time of Frederick the Great up to the present day, and describes the main causes which have rendered

these changes necessary. He then goes on to consider the motives which actuate men on the field of battle, and enunciates eight chief tactical principles based on the most powerful of such motives, in the author's opinion, namely, the passion of revenge.

These eight principles are then discussed in detail, and many examples from campaigns are alluded to in support of them. To the majority of these principles no exception can be taken, but some require rather stronger arguments in support of them than Mr. Bürde has expressed in this short volume, before they can be accepted as they stand.

Perhaps the most valuable part of the book is the last half of it, and this is devoted to a discussion of the conditions which favour an extension of front. Frontages, he states, are dependent on two factors—the size of the force and the number of the communications—and the wide frontages employed in late wars were due to these causes and not to modern firearms.

Mr. Bürde has illustrated the discussions principally by means of imaginary examples and rough sketches, with the result that they are both lucid and brief.

His object is not to give an exhaustive treatise on Tactics, but merely to throw light on tactical subjects. In this he has ably succeeded.

A Summer Night's Dream. Translated from the German by Captain Gawne. 168 pp. 8vo. Hudson Press, 1908. 4/6.

The articles from which this book takes its title have already appeared in the *United Service Magazine.*

The aim of the author is to prove the necessity for shoulder-to-shoulder formations in the attack, and at the time of its publication (1889) it produced a considerable amount of discussion in Germany.

The book also contains the well-known "Defence of Duffer's Drift," but the small plans published with the latter are not produced.

Machine-Guns from a technical and tactical point of view (Maschinengewehre, ihre Technik und Taktik). By A. Fleck. 165 pp., with 15 plates and numerous sketches in text. 8vo. Berlin, 1908. Mittler. 4/-.

The object of this book, as stated in the preface, is to give a general review of the whole subject of machine-guns.

The book commences with a short history of the development of this type of firearm, followed by descriptions of the Hotchkiss, Schwarzlose, Madsen, Bergmann, Colt, Skoda, and Fitzgerald systems, with a table (page 81) showing the patterns adopted in various countries.

The organisation of machine-gun units in the chief military states is then briefly described.

The succeeding chapters deal with the tactical employment of these weapons, special chapters being devoted to the Russian Madsen cavalry machine-gun, and to the lessons of the Russo-Japanese war.

The book concludes with 15 plates showing different types of machine-gun equipment. It also contains a useful index of co-temporary military literature on the subject of machine-guns.

Colonial Operations. Tactics of Small Detachments. Morocco and West Africa (Opérations coloniales. Tactique des petits détachements. Maroc et Afrique occidentale). By Capt. G. Prokos, with a preface by Gen. Perreaux. 211 pp., with plans. 8vo. Paris, 1908. Lavauzelle. 3/6.

This book is written for officers serving in Morocco and Western Africa. The author discusses the organisation and conduct of a small column sent to punish a recalcitrant tribe, the best method of protecting convoys, and the employment of native guides with instructions for questioning them. The second part treats of the employment of larger units and illustrates by diagrams various formations for the march; the advantages and disadvantages of marching in squares, as well as the precautions to be taken for the protection of the baggage and ammunition. Other chapters treat of the safety of camps, employment of artillery, detachments on the march, choice of ground for halts, and the disposition of outposts, passage of woods, bivouacs, and the order of battle under varying conditions by day and by night.

TRAINING AND EDUCATION.

Notes on Optics. By H. J. Davidge, B.Sc., M.I.E.E. 92 pp., with 72 figures. London, 1908. H.M. Stationery Office. -/6.

This is an altogether excellent little text book, and may be cordially recommended to any one desirous of acquainting himself with the elementary theory of ordinary optical instruments. We say elementary advisedly, for the author has confined his attention to the conventional representation of light as proceeding in straight rays, thus neglecting diffraction effects. This is, possibly, the most satisfactory treatment for the beginner, certainly it is the usual one, though it has the disadvantage of allowing no use to be made of the fundamental principle upon which the efficiency of any optical instrument ultimately depends, namely, its resolving power. It is also doubtful whether it is not advisable to impress upon the student at a quite early stage that the image of a point, formed by a lens or mirror system, is not another point. This would show him, for example, why electrical waves, which, as is here

stated in the preface, are capable of being both reflected and refracted, cannot be brought to a focus by any practicable lens.

After a short introductory chapter on the nature of light, reflection and refraction are discussed in a clear and succinct manner, though we might be inclined to cavil at the statement (p. 27) that a totally reflecting surface serves "as well as" a mirror. Surely this should read "much better than"?

The general theory of curved mirrors and lenses is sufficiently explained, and the dispersion and deviation of coloured rays, leading up to the subject of achromatism, is dealt with.

The optics of sight are adequately treated, with the possible exception of the section upon colour-blindness, which appears somewhat incomplete. The statement that in a colour-blind person the red sensation is usually absent is hardly correct. We believe that green-blindness is very nearly, if not quite as common as red-blindness. A person troubled with either defect will mistake green and red; the difference being that the red-blind subject will match a dark red and a light green, while to the green-blind a dark green and pink will appear the same. We may also remark, though at the risk of being considered hypercritical, that a fatigue colour is not exactly the same as a complementary colour.

The various applications of the properties of light to simple optical instruments, with special reference to those used in the Service, form Part II. of the book. The optics of searchlights, the sextant, the microscope, field-glasses, and telescopes, optical gun sights, stereoscopes and range-finders, are described in the clearest manner. The book is well printed and adequately illustrated. It covers ground which is not, as far as we are aware, exactly covered by any previous publication, and meets a distinct want. It is one that should be in the hands of every officer whose duties involve the use of any optical instrument, and who desires to understand the nature of the tool he is employing.

The Sepoy Officer's Manual. 4th edition of original work by Lieut. Barrow (now Lieut.-Gen. Sir E. G. Barrow), revised and brought up to date by Lieut. M. S. Hewett, 7th (D.C.O.) Rajputs. 213 pp., with appendices and index. 16mo. Calcutta, 1908. Thacker Spink.

A concise compendium of all that is most essential for an infantry officer of the Indian Army to know as regards the discipline, duties, training, equipment, interior economy, composition, and recruitment of his branch of the service. Compiled from the various regulations, the Indian Articles of War, and other official sources, and originally intended as a help to young officers in passing the examination for admission to the Indian Army. It contains a good deal that is of interest to the Service at large, especially the chapter on the composition and castes of the Indian Army. A noticeable omission is that of any statement of peace and war establishments and of measures to be taken on mobilisation.

Annual of the Society for the Promotion of Military Science (Vereeniging ter Beoefening van de Krijgswetenschap. Wetenschappelijk Jaarbericht 1907-1908). 428 pp. 8vo. The Hague, 1908. Bloemendaal.

This book is an annual, somewhat resembling that of Von Löbell in Germany. Though not an official publication, it bears on the title page a list of Dutch officers of all arms and departments who have contributed to the work, headed by the assistant-chief of the Dutch General Staff. The book commences with two chapters dealing with the organisation and strength of the army of the Netherlands in Holland and in the East Indies. Then follows a series of articles on the progress and development of military science, and the tactics and equipment of the several arms in Holland and in the chief military States. Of especial interest is the article (p. 366) on the policy of the Netherlands in regard to the question of fortified lines and positions.

Education in the Army of a Democracy (L'éducation dans l'armée d'une Démocratie). By Capt. Lebaud. 195 pp. 8vo. Paris, 1908. Berger-Levrault. 2/3.

The author repeats the old maxims as to the value of moral force and the necessity for cultivating the spirit of enthusiasm in the rank and file if an army is to gain victories. He points out that the armies of the old régime and of the Empire were animated by personal loyalty towards the King or Emperor and by professional pride in the service to which they belonged; now that the personal ruler has been replaced by a democracy, and in place of a standing army there is a nation in arms, it is of the greatest importance to inculcate loyalty to the republic, a lofty patriotism, readiness to face any hardship and danger for the sake of France, and attachment to their officers on the part of the men. He adverts to the necessity of opposing the anti-military crusade and of maintaining discipline, and recalls the brilliant courage and dash of the French soldier and also his liability to discouragement under failure. He discourses on life in barracks, rifle shooting, theoretical instruction, and the maintenance of discipline generally and the training of recruits. Among the books recommended for reference is "A quoi tient la supériorité des Anglo-Saxons?"

After some preliminary observations on reports and sketches, the author gives as examples 30 Tactical Exercises, the nature of which is indicated by their titles, for instance:—Cavalry Support, Advanced Guards, Flank Guards, Rear Guards, Outposts near the Enemy—far from the Enemy, etc., Attack of Outposts, Reconnaissance, Attack and Defence of Convoys, and so on.

The problems are all worked out in great detail; some of the orders to sergeants and corporals might be considered trivial and seem to presuppose great want of intelligence on the part of non-commissioned officers and privates.

Notes on Tactics, for the Use of Candidates at the Staff College (Causeries sur la tactique, à l'usage des candidats à l'Ecole supérieure de guerre). 2nd edition. By Captain Serret. 270 pp., with map. 8vo. Paris, 1908. Chapelot. 3/6.

This book is intended for Candidates for the Ecole supérieure de guerre; it comprises sixteen tactical problems, a short treatise on field fortification and twenty-one exercises for the use of an instructor or examiner.

In each problem the General and Special Ideas are given on which the problem is based; then there is an elaborate study of the dispositions, beginning with the orders which would be given by the General of Division and General of Brigade. The various incidents which might occur in the carrying out of the orders are discussed, and the points which the officer who has to give orders should bear in mind, as well as the duties of the covering screen of cavalry, the artillery, &c. A map shows the scene of the imaginary operations described in the exercises, comprising the country to the north-west of Verdun.

Thirty Tactical Problems for the Use of Candidates at the School of Saint Maixent (Trente Problèmes Tactiques à l'usage des Candidats à l'Ecole de Saint Maixent, etc.). By Lieut. A. Balédent. 214 pp., with map. 8vo. Paris, 1905. Chapelot. 3/-.

This work is primarily intended for the instruction of the sous-officiers who go through the school at Saint Maixent with a view to qualifying for the commissioned ranks. During their course in the school the candidates have to work out tactical exercises on maps, and to draw up reports of operations and to illustrate them by sketches.

The instructors practise the students either in the field or in the house with maps or sand models.

The author insists on the necessity of carrying through an exercise in all its details step by step so as to take into consideration everything that might occur, and to go through a large number of such exercises so as to vary the conditions as much as possible. He lays down the following maxims to be kept in mind:—

1. To determine the principles upon which the operation to be taken is to be based.
2. To apply those principles to the case in point.
3. To draw up the orders and describe the operations which are to result from them.

It may be observed that the tactical exercises in this book are all worked out on a certain sheet of the French Survey which lies to the south-east of Commercy, the author pointing out that all the questions set in the examinations at Saint Maixent are comprised in this district. Apparently it must be as well known to the French officers as the Fox Hills are to ours.

Duties of Adjutants of all Arms (Der Adjutantendienst bei den Truppen aller Waffen). By Captain Graf von Schwerin. 213 pp. 8vo. Berlin, 1909. Mittler. 3/9.

The author goes very fully into the subject, and commences by indicating the method of appointment of an adjutant and his general duties. He then goes on to discuss the office duties and correspondence, duties in the field and connected with the troops in barracks, and the duties of garrison and district adjutants. The authorised allowances for this appointment are given at the end of the book.

Official Correspondence with Superiors and Departments, and the Preparation of Officers' Written Work (Der Schriftverkehr des Offiziers mit Vorgesetzten und Behörden, und die Anfertigung militärischer Ausarbeitungen). By Captain L. Werner. 45 pp. 8vo. Berlin, 1908. Liebelschen Buchhandlung. 1/3.

A useful guide for officers in conducting official correspondence and in drawing up schemes, reports, and orders, with some hints as to the execution of sketches.

Notes on Staff Rides and Regimental Tactical Tours for Beginners. By Major T. E. Fowle. 26 pp. 12mo. London, 1908. Gale and Polden. 2/-.

The second edition of this book, the first edition of which was published seven years ago. It deals briefly with the general object of Staff, Regimental, and Tactical Tours, and gives general instructions as regards the method of carrying them out. It concludes with notes on writing an appreciation of the situation and Notes on Reconnaissance. In both of these the author gives numerous headings, which may be useful to beginners, for whom the book is written, but which, if rigidly adhered to, are apt to lead to the inclusion of much unnecessary detail.

On the whole the book should prove useful to those for whom it is intended.

Operation Orders (Gefechtsbefehle). By Captain H. von Kiesling of the General Staff. 98 pp., with two maps. 8vo. Berlin, 1909. Eisenschmidt. 2/8.

This study on defence orders has been produced as Part II. of a previous work by the same author, entitled "Practical Exercises in issuing Operation Orders."

The whole of the examples of orders given are based on one general and one special idea, and deal with the movements of a detached brigade, the *rôle* of which is to guard the right flank of an army holding the near bank of a river line.

The operations are followed during the advance of the brigade to the line it is detailed to defend, and all orders issued by the brigade commander for the march, halts, reconnaissance, and occupation of the position assigned to his command, and for medical and supply services, are given, together with those issued by the regimental and battalion commanders resultant on each set of the above orders.

An instructive little book.

The Russian Manual of Field Fortifications for the Infantry (Наставление по Войсковому Инженерному Делу Пѣхоты). Official. 73 pp., many illustrations. 12mo. St. Petersburg, 1908. General Staff.

This is a portion of the first part of the new *Manual of Field Fortification for the Infantry*, and deals with the "Strengthening of Positions." The second and third parts will deal with "Communications" and "Troop Telephones." The completed manual will replace the text-book issued in 1891.

The volume is divided into two sections:—

(1) Instruction laid down for the private and lance-corporal (ефрейторъ).

(2) Instruction laid down for non-commissioned officers.

A third section, not yet published, will give instruction for the officer.

The first section contains forms of trenches, traverses and shelters, and is written in such simple language that, with the help of the pictures, which are drawn in perspective, any soldier should be able to understand it without instruction.

The second part gives some instruction as to the siting of trenches, revetments, screening, shell-proofs, head-cover, and loopholes, latrines, abatis, wire entanglements, deep military pits, utilization of walls, ditches, and other existing cover, kitchens, and perspective views of two redoubts.

There is nothing new or remarkable in the volume. No pattern of fire trench with a low parapet is given, 20 inches being the lowest shown. Special attention is directed to digging lying down, the necessity for providing cover for the head and shoulders, and for conveniences:—Latrines, water-casks, ammunition recesses—in trenches. The deep military pits, to which the Japanese engineers say they owed many decorations, are retained.

The book is very short, and the patterns simple, as might be expected of an army with recent war experiences.

Practical Hints for the Instruction of the Infantry Recruit (Praktische Winke für die Ausbildung des Infanterie-Rekruten). By Captain Rücker. 86 pp. 8vo. Berlin, 1909. Mittler. 1/-.

A useful little book for the German company commander. It commences with a description of the general lines on which the recruit training staff is to be trained prior to the arrival of the recruits, and the various other arrangements which have to be made, such as whitewashing the reception rooms, putting clothing and arms in order, and so forth.

The twelve weeks' recruit course is then dealt with in dealt, the programme for each week being given in extenso, with references to the necessary paragraphs of the various regulations.

Infantry Training Regulations (Provisional) (Reglamento Provisional para la Instruccion Tactica de las Tropas de Infanteria). Official. 179 pp. 8vo. Madrid, 1908. Talleres del Deposito de la Guerra. 2/2.

These Provisional Regulations for the training of the infantry of the Spanish Army take the place of those published in three volumes in 1898. They are divided into two parts, the first dealing with formations and parade movements, the second with field training. At the commencement of the volume it is laid down that preparation for war is to be the sole aim of all training and instruction, and the Regulations are consistent throughout with this prevailing idea. Initiative is encouraged to a marked degree, and stress laid on the evils of a purely defensive attitude. The Regulations have, in fact, been brought into line with the modern train of thought, regarding infantry tactics.

The book is conveniently arranged, and undoubtedly stands on a higher plane than did its three-volume predecessor.

Instruction of Non-Commissioned Officers (Dienstunterricht des Unteroffiziers). By Major von Estorff. 50 pp. 8vo. Berlin, 1908. Mittler & Son. -/6.

This little pamphlet is an aid to non-commissioned officers for the instruction of recruits. Some useful hints are given as to how instruction should be imparted, and what to avoid. The syllabus of instruction in quarters and in the field is entered into in some detail.

The Scout in War. What He Does and How He Does It. By one of Rimington's Tigers. 150 pp. 8vo. Dublin, 1908. Sealy, Bryers, & Walker.

This book is not intended as an exhaustive guide to scouting, but as an outline of the every-day duties of a scout when on active service. The author first describes the sort of man who makes a scout, and gives a list of the equipment he will find

necessary. He then passes to the subject of his horse, the care of it, and the training it must receive before it can be considered otherwise than as a danger. Having discussed these preliminaries, he devotes a chapter to tracking, and gives examples of it from his own experience in South Africa. Many useful and practical hints are then given with regard to night work, locating the enemy and drawing fire, &c. Finally, the author describes a few rough and ready bush makeshifts which come in handy when living in camp. The book is written in a rough and ready style, but has practical advice which should be of value to beginners.

The Sword, and How to Use It. By Lieut. J. Betts. 73 pp., with numerous figures. 8vo. London, 1908. Gale & Polden. 2/-.

A practical treatise on the use of the sword (or sabre) for fighting on foot. It goes fully into the subject, and coming from the pen of such an expert in sabre-fighting is well worth the study of those who take up this fine physical and mental recreation. The illustrations are good and clear.

Instructional Letters on Tactics (Taktische Unterrichtsbriefe). By Major-General Griepenkerl. 286 pp., with four maps. 8vo. Berlin, 1909. Mittler. 7/6.

This is the 7th edition of the valuable work orginally published by General Griepenkerl (then a captain) eighteen years ago. A new edition has been rendered necessary by the recent changes in German regulations, and notably by the issue of new Field Service Regulations and Training Manuals for Infantry and Field Artillery. The contents of the work are otherwise unchanged.

The 6th edition was translated and adapted to English organisation by Captain Maxwell under the title of "Letters on Applied Tactics." (Rees, 8/6.)

Fortification applied to Schemes. By Lieut.-Col. L. J. Shadwell and Major W. Ewbank. 252 pp. 8vo. London, 1908. Rees. 10/6.

The second edition of this book, written to aid candidates in their study of this subject for promotion. The first portion of the book consists of an amplification of the Manual of Military Engineering, and of explanations how the calculation as to working parties, tools, material, &c., are arrived at and can be practically applied.

The rest of the volume, and by far the greater portion, is devoted to showing how the principles contained in the manuals should be applied to the solution of problems, and a selection of papers, both for the practical and theoretical examination, is given with solutions.

This book serves a useful purpose, as it enables candidates to direct their studies on the right lines, and goes thoroughly into the necessary details.

A Collection of Tactical Problems with Solutions (Sammlung taktischer Aufgaben mit Lösungen). By Major Hoppenstedt. 135 pp., with three maps and eight sketch maps. 8vo. Berlin, 1908. Mittler. 3/-.

This is a new edition of the well-known work published in 1903, which was translated by Major J. H. V. Crowe, R.A., in 1905, under the title of "Problems in Manœuvre tactics, with solutions." A few problems have been added, and the solutions altered to accord with the new editions of the German Field Service Regulations, Infantry Training, etc.

Applied Tactics for Examination Purposes. By Capt. Demangel. 192 pp. 8vo. Yorktown, 1908. Bradford. 5/-.

The second edition of this book, as its title denotes, deals with Applied Tactics solely from an examination point of view. It is a supplement to "Questions and Answers on Tactics" by the same author, and is intended to be read in conjunction with it.

Its value lies chiefly in calling attention to principles set forth in Combined Training and other text books, and showing how these affect the solution of problems on a map.

Diagrams illustrating the various examples quoted are not given, and without them it is somewhat difficult to follow the author's meaning.

The Military Law Examiner. By Lieut.-Colonel G. C. Pratt. 317 pp. 8vo. London, 1908. Gale and Polden. 4/6.

The seventh edition of this well-known publication.

Administration, Organisation and Equipment made Easy. By Lieut.-Col. S. T. Banning. 265 pp. 8vo. London, 1908. Gale and Polden. 4/6.

This is the eighth edition of this publication, revised and brought up to date by Capt. R. F. Legge.

Military Law made Easy. By Lieut.-Col. S. T. Banning. 332 pp. 8vo. London, 1908. Gale and Polden. 4/6.

A fourth edition of this book, brought up to date in accordance with recent text-books and Army Orders.

(To be continued.)

SECOND-HAND FURNITURE

Costly Modern and Antique without the least reserve.

IMPORTANT PRIVATE SALE

Formerly the Property of Major Arthur Griffiths, deceased.

Removed from Curzon-street, Mayfair, W., also entire CONTENTS of 22-roomed Mansion removed from Kildare-gardens, Bayswater.

Any item will be sold separately and can remain warehoused free for 12 months or delivered town or country. Rare opportunity for dealers, being sold at less than one-fourth the original value, comprising rich silk and other draperies, choice Persian, Turkey, Axminster, and other fine carpets from 25s. each. Very elegant massive square pillar all brass full size and twin bedsteads with horsehair mattresses, &c., complete sets from 3 guineas. Choice bedroom suites, Queen Anne, Hepplewhite, Chippendale and Sheraton designs, white enamelled, English oak, grey ash, and solid walnut suites complete from £3 17s. 6d. each, large ditto, £6 15s. each, and ditto with very elegant large double glass door wardrobes £9 15s. Two very magnificent solid satinwood bedroom suites, inlaid amboyna and mother of pearl, with 6 ft. and 7 ft. wardrobes and bedsteads made to match. Very richly carved antique oak dining-room and hall furniture, including old Welsh dressers, coffers and chairs. Two very fine grandfather and three other bracket chiming clocks. Set of very finely-carved Chippendale design dining chairs covered morocco leather. Set Hepplewhite and Sheraton design dining-room furniture, complete dining-room suite in solid fumigated oak surmounted oxydized copper ornaments, a splendid design of the William and Mary period, 15 guineas the lot complete. Pierced fronts and fine brass and copper fenders from 7s. 6d. Some very grand specimens of tigers, leopards, and bears, shot by owner and fully mounted as rugs. Costly and near-new drawing room furniture, including some choice specimens of gilt French settees, chairs and screens of Louis XVth period. Fine marquetery, Vernis Martin, and Boul Cabinets and writing bureaux, and a very elaborate complete drawing room set in choicely decorated satinwood, consisting of large cabinets, fitted with show cases, drawers, &c., overmantel fitment, with a very elegant centre table to match. Square Empire lounge settee, two elegant easy chairs, and four occasional chairs, the whole beautifully spring upholstered, covered with brocaded silk, accept 27 guineas for the whole lot, worth over treble, also a very handsome similar set of dark Chippendale mahogany design, 14 guineas. Two luxuriously spring upholstered Chesterfield settees, 45s. and £3 15s. Several fancy occasional chairs. Good pianoforte by eminent makers, 7 guineas, and boudoir grand by John Broadwood and Sons (original cost 135 guineas), and another new art model by Edward Brinsmead, 16 guineas, worth over treble. Valuable collection of china, including rare Capo di Monte casket, Sèvres, Dresden, old Staffordshire, &c. Quantity of valuable Sheffield plate, oak canteen containing cutlery, by Mappin & Webb, valuable set of English cut table glass, fine quantity of bed and table linen, oil and water paintings and several old engravings, billiard table and all accessories. Choice carved Indian ivory and brass vases and numerous other items of great interest collected by the owner during his travels. Can be seen and any portion may be selected at once at

The Furniture and Fine Art Depositories,

48 to 50, PARK ST., UPPER ST., ISLINGTON, LONDON, N.

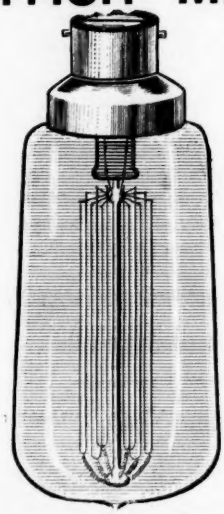
A few minutes from Highbury Station, North London Railway.

9 till 9, close 5 Thursday.

FULL CATALOGUES and PARTICULARS NOW READY, and WILL BE SENT ON APPLICATION.

THE BRITISH METALITE

Electric Lamp.



THE MOST ECONOMIC METAL FILAMENT LAMP.

IT WILL SAVE

75%

OF YOUR CURRENT BILL.

WRITE FOR DESCRIPTIVE CATALOGUE.

WE SUPPLY THE GOVERNMENT.

MAKERS AND PATENTEES.

BRYANT TRADING SYNDICATE, LTD.

Royal Glow Lamp Works, HIGHBURY, LONDON, N.

National Defence

THE ORGAN OF THE

National Defence Association

WHOSE OBJECT IS TO SHOW THE NECESSITY FOR LAND AS WELL AS NAVAL FORCES ADEQUATE TO THE NEEDS OF THE EMPIRE, AND TO ASSIST IN REMOVING ARMY QUESTIONS FROM THE ARENA OF PARTY POLITICS.

PUBLISHED MONTHLY. **Price 1/- net.**

POSTAGE WHERE REQUIRED, 3d. EXTRA.

The Editor invites contributions from all who are interested in any aspect of the problem of National Defence, and particularly from Officers holding His Majesty's Commission at home and in the Colonies.

Contents of January Number:

THE FOUNDATIONS OF REFORM. By the EDITOR.

THE DYNAMIC QUALITY OF A TERRITORIAL FORCE. By VISCOUNT ESHER, G.C.B., G.C.V.O.

THE PRIVATE'S POINT OF VIEW. By EDGAR WALLACE.

THE SITUATION IN THE BALKAN PENINSULA. By "MILITARIST." With Maps.

THE OBJECTS AND MANNING OF THE GENERAL STAFF. By COLONEL C. E. CALLWELL, C.B.

A NATIONAL ARMY, FROM AN EMPLOYER'S POINT OF VIEW. By SIR BENJAMIN C. BROWNE, D.C.L., D.L. (*Chairman, Messrs. Hawthorn, Leslie & Co.*)

A FOREIGN CHRONIQUE. By "AN OLD HAND."

THE EARLY DAYS OF JOHN COMPANY. By MALCOLM SETON.

THE SECOND LINE ARMY FROM MONTH TO MONTH. By "TERRITORIALIST."

LORD ROBERTS'S SPEECH: SOME FOREIGN COMMENTS.

BOOKS WORTH READING.

CORRESPONDENCE.

THE TRAINING OF THE TERRITORIAL ARMY: LIEUT.-GENERAL R. S. S. BADEN-POWELL AND OTHERS.

COUNCIL OF COUNTY TERRITORIAL ASSOCIATIONS.

Publishers—HUGH REES, Ltd., 119, Pall Mall, London, S.W.

Wholesale Agents—SIMPKIN, MARSHALL, HAMILTON KENT & Co., Ltd., or copies can be obtained of all Booksellers, Newsagents & Railway Bookstalls.

For Advertising Contracts communicate with the Sole Advertising Agents: Spottiswoode, Dixon & Hunting, Ltd., 180, Fleet Street, E.C.

THE

Cavalry Journal

Published by Authority of the Army Council, and under the Direction of the Commandant of the Cavalry School.

Published Quarterly, Price 2/6 net. Postage 4d.

NOW READY. No. 13.—JAN., 1909. NOW READY.

CONTENTS.

OFFICER—ROYAL ARTILLERY—1828. *Frontispiece.*

THE TRAINING OF TERRITORIAL HORSE ARTILLERY. By Captain Hon. G. F. STANLEY, R.A., Adjutant of the Hon. Artillery Company of London.

FATHERS OF THE INDIAN CAVALRY: LIEUT.-GENERAL SIR JOHN HEARSAY. By Colonel H. W. PEARSE, D.S.O. (Illustrated).

NOTES ON WATER SUPPLY. By Captain C. W. SINGER, R.E.

RUSSO-JAPANESE WAR.—II. By Colonel W. H. BIRKBECK, C.B., C.M.G. (With Maps and Illustrated).

THE FEEDING OF THE TROOP HORSE IN INDIA. By Colonel H. DE B. DE LISLE, C.B., D.S.O.

SCHOOL OF INSTRUCTION FOR MOUNTED INFANTRY AT LONGMOOR. By Brevet-Major A. J. MCNEILL, Seaforth Highlanders (late Adjutant, School of Instruction for Mounted Infantry.) (Illus.)

TACTICAL OBSERVATION AND THE TRANSMISSION OF REPORTS. By Brigadier-General E. H. H. ALLENBY, C.B.

A RIDE IN THE BALKANS DURING THE CRISIS. By Lieutenant BERTRAND STEWART, West Kent Yeomanry. (With Map).

THE COMBINATION OF SHOCK WITH DISMOUNTED FIRE ACTION—AN IDEA. By "BENGAL LANCER."

THE LIGHT HORSE OF AUSTRALIA: THEIR ORGANISATION AND TRAINING. By Captain C. B. B WHITE, *p.s.c.*, Royal Australian Artillery.

A SHORT ACCOUNT OF THE CAVALRY WORK DURING THE OPERATIONS OF THE MOHMUND FIELD FORCE, 1908. By Brevet-Colonel C. B. UNWIN, D.S.O., Commandant, 21st (Prince Albert Victor's Own) Cavalry.

A SYSTEM OF TEACHING SKETCHING IN A CAVALRY REGIMENT. By Lieutenant F. G. A. ARKWRIGHT, 11th (Prince Albert's Own) Hussars. (Illustrated).

RECENT PUBLICATIONS. (Illustrated).

EDITORIAL NOTES.

SPORTING NOTES.

SUBSCRIPTIONS should be sent direct to :—
The Managing Editor at

THE ROYAL UNITED SERVICE INSTITUTION, WHITEHALL, LONDON, S.W.

or Copies may be obtained by ALL Booksellers, Newsagents and Railway Booksellers, from

THE GILBERT-WOOD PRESS,
3 & 5, ARUNDEL STREET, STRAND, LONDON, W.C.

Telephone Nos. 4680 & 4680A GERRARD **Telegraphic Address:—"GILBERWOOD, LONDON."**

The Journal of the Royal Artillery.

THIS Journal, which was formerly known as the "Proceedings" of the R.A. Institution, contains articles and information on Artillery matters, some highly technical and some general. Articles on general Military topics also appear.

In the Translations and Précis, which are an important feature, an attempt is made to keep up with the progress of Artillery on the Continent.

All members of the Royal Artillery Institution receive the Journal.

Any officer serving in the Navy, Army, Militia, Imperial Yeomanry, Volunteers and Colonial Permanent Forces can receive this Journal post free on application to the Secretary, R.A. Institution, at an annual subscription of 20*s*.

WOOLWICH: ROYAL ARTILLERY INSTITUTION.

Single Copies, price 2*s.* 6*d. each, postage extra.*

Sole Advertisement Contractor, C. Gilbert-Wood, Dacre House and Granville House, Arundel Street, Strand, W.C.

Telegrams:—"GILBERWOOD, LONDON." *Telephone*:—4680 Gerrard.

SCHOOL OUTFITS . . AT . . **Moderate Charges**

Suits
Overcoats
Shirts
Underwear
Boots
Hats
Hose
Trunks, &c

FROM

SAMUEL BROTHERS, LTD.,

65 & 67, Ludgate Hill, London, E.C.

ESTABLISHED SEVENTY YEARS.

Assortments *forwarded on approval to any part of the country.*
Appointments *kept in London & Suburbs free of charge.*
Illustrated Catalogue *and Patterns post free.*
The "Wear-Resisting" Fabrics (Regd.)—*Speciality for Boys' Hard Wear*

HEIDELBERG, GERMANY

COMFORTABLE HOME,

with Tuition in

FRENCH AND GERMAN,

offered to Officers on Language leave and others by a German lady (highly recommended).

Address, MISS M. FISCHER,
Rohrbacher-Strasse, 50,
Heidelberg, Germany.

SWAN SONNENSCHEIN & CO.'S BOOKS.

THE SPECIAL CAMPAIGN SERIES.

Specially designed to meet the requirements of Candidates for Army Examinations.

Crown 8vo., cloth, price 5s. net each.

1. **FROM SAARBRUCK TO PARIS.** Lieut.-Col. SISSON PRATT. With 10 Sketches and Maps.
2. **THE RUSSO-TURKISH CAMPAIGN, 1877.** By Major F. MAURICE, *p.s.c.* (The Sherwood Foresters). With 3 Maps.
3. **THE FREDERICKSBURG CAMPAIGN, 1862.** By Major G. W. REDWAY. With Maps and Plans.
4. **THE CAMPAIGN OF MAGENTA AND SOLFERINO, 1859.** By Col. HAROLD WYLLY, C.B. (late The Sherwood Foresters). With Maps and Plans.
5. **THE WATERLOO CAMPAIGN.** By Lieut.-Col. SISSON PRATT. With Maps and Plans.
6. **THE CAMPAIGN IN BOHEMIA, 1866.** By Lieut.-Col. GLÜNICKE. With Maps and Plans.
7. **THE LEIPZIG CAMPAIGN, 1813.** By Col. F. N. MAUDE, late R.E. With Maps and Plans.
8. **GRANT'S CAMPAIGN IN VIRGINIA, 1864.** (Wilderness Campaign.) By Capt. VAUGHAN-SAWYER. With Maps and Plans.
   (This Campaign is set for all Military Examinations in November, 1908, and May, 1909.)
9. **THE JENA CAMPAIGN.** By Col. F. N. MAUDE, late R.E. [*Shortly.*
10. **THE RUSSO-JAPANESE CAMPAIGN UP TO THE BATTLE OF LIAO-YANG.** By Capt. SEDGWICK, R.F.A. [*Shortly.*
    (This Campaign is set for all Military Examinations in May and November, 1909.)

SWAN SONNENSCHEIN & Co., Ltd., 25, High Street, Bloomsbury, W.C.

Cunliffe, Russell & Co.

(Established 1888).

Bankers and Dealers in Government, Municipal, Land, Bank and other Bonds or Debentures issued by responsible public bodies on the Continent.

Best-known experts and largest Dealers in this form of Security in the World.

No connection with any other Firm.

SOLE ADDRESS SINCE 1890:

10 & 12, Place de la Bourse, PARIS.

Reg'd. Tel. Address: "CUNRUSSELL, PARIS."

All APPLICATIONS for ADVERTISEMENT Space in THIS JOURNAL

. . SHOULD BE MADE TO . .

The Sole Advertisement Contractor,

C. GILBERT-WOOD, F.R.G.S.,

DACRE HOUSE, and
GRANVILLE HOUSE,
ARUNDEL STREET,
STRAND, LONDON, W.C.

TELEPHONES—4680 Gerrard.
TELEGRAMS—"Gilberwood, London."

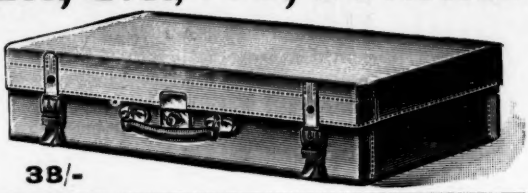
S. FISHER, LTD., 188, STRAND

"Kwikchange."

Fisher's Last New

SUIT CASE

Sole Leather.
New Principle.
Extra Light.
Extra Strong.



38/-

24 in.

With Claw Catches.

30/- to £6

FISHER'S

KIT BAGS.

This Special Kit Bag,

All latest improvements. Full size, 24 in.

£5 15 0

FISHER'S "EIFFEL."

£5 to £100

This Case £23
Silver Fittings,
Ivory Brushes.

CATALOGUES FREE.

S. FISHER, Ltd., 188, STRAND, LONDON.

Mr. E. Carlisle, M.A. (Cantab.),

AND

Major M. H. Gregson, late R.E.

Prepare Candidates for all Army and Civil Service Examinations, at

5 & 7, LEXHAM GARDENS, KENSINGTON, W.

We have retained the services of all the Tutors who have been so remarkably successful in past years, and continue to receive both Resident and Non-Resident Candidates.

Recent Successes include:

STAFF COLLEGE, AUGUST, 1908.

The following Officers, whose names are arranged in regimental order, were successful from us at the recent Competitive Examination for admission to the Staff College

Capt. A. F. Home, 11th Hussars.
" J. Knowles, 15th Hussars.
" C. R. Newman, Royal Field Artillery.
" P. E. Lewis, Royal Field Artillery.
" M. H. C. Bird, Royal Garrison Artillery.
" C. G. Fuller, Royal Engineers.
" G. R. Frith, Royal Engineers.
" T. C. Mudie, Royal Scots.
" I. L. B. Vesey, Royal West Surrey Regiment.
" H. G. A. Thomson, Royal Warwickshire Regiment.
" E. T. Humphreys, Lancashire Fusiliers.
" D. S. Robertson, Royal Scots Fusiliers.
" H. L. Alexander, Dorsetshire Regiment.
Lieut. A. P. Wavell, Royal Highlanders.
Capt. H. C. Johnson, D.S.O., King's Royal Rifle Corps.
" R. M. Tyler, Durham Light Infantry.
Lieut. A. J. McCulloch, Highland Light Infantry.
Capt. L. C. Sprague, Royal Irish Rifles.
Capt. L. F. Renny, Royal Dublin Fusiliers.
Lieut. C. M. Davies, Rifle Brigade.
Capt. R. D. Barbor, Army Service Corps.
" C. L. Norman, M.V.O., Indian Army.
" G. L. Pepys, Indian Army.

The following obtained nominations:

Major S. R. Kirby, 6th Dragoon Guards.
Capt. R. Hutchison, 11th Hussars.
" E. F. Calthrop, Royal Field Artillery.
" and Bt. Maj. A. J. Turner, Royal Field Artillery.
" and Bt. Maj. C. B. Thomson, Royal Engineers.
" and Bt. Maj. A. J. G. Moir, Royal Scots.
" and Bt. Maj. A. McN. Dykes, Royal Lancaste Regiment.
" A. D. Green, D.S.O., Worcestershire Regiment.
" T. H. C. Nunn, D.S.O., Royal West Kent Regiment.
" H. L. Knight, Royal Irish Fusiliers.

WOOLWICH.

June, 1908.

Third	G. B. STALLARD	...	7,629
22nd	L. F. PAGE	...	6,564
23rd	G. E. W. FRANKLYN	...	6,559
29th	G. A. CAMMELL	...	6,437

November, 1907.

Third	F. N. M. MASON	...	7,441
Fifth	E. J. MOORHEAD	...	7,236
Sixth	C. W. R. TUKE	...	7,166
24th	J. R. PINSENT	...	6,493
27th	H. W. CRIPPIN	...	6,411
32nd	L. H. KING-HARMAN	...	6,372
35th	R. B. PARGITER	...	6,339

This is the second time in two years we have passed **three** out of the first **six** for Woolwich.

SANDHURST.

June, 1908.

Fourth	H. T. ROHDE	...	5,307
27th	W. G. MAXWELL	...	4,937
44th	H. L. MOOD	...	4,775
45th	H. S. F. COSENS	...	4,761
79th	J. M. PONSFORD	...	4,473
89th	B. H. BONHAM-CARTER	...	4,399
105th	L. B. RUNDALL	...	4,312
127th	J. A. BATTEN-POOLL	...	4,183
161st	A. E. LAWRENCE	...	3,985
162nd	M. ALEXANDER	...	3,981
167th	R. W. RUSSELL	...	3,940
171st	G. W. MACKINTOSH	...	3,897
191st	R. H. BROOME	...	3,733
—	C. S. HILTON *	...	3,563
—	W. N. SHIPSTER*	...	3,221
—	J. V. DAWSON*	...	3,148

* Subsequently admitted.

INDIAN POLICE, JUNE, 1907.

Third	F. W. Toms	...	6,886	27th	H. W. Waite	...	5,980

ARMY QUALIFYING, SEPTEMBER, 1908.

NINE WERE SUCCESSFUL FROM US.

MILITIA COMPETITIVE EXAMINATION, MARCH, 1908.

Douglas Scott, Kent Artillery.
D. G. Gunn, 3rd P.W.O. West Yorkshire Regt.
A. L. Cooper Key, 5th Middlesex Regiment.
W. C. Loder Symonds, Lancashire Fd. Artillery.
R. G. Atkinson, West Surrey Regiment.
R. W. Leach, Cambridge Volunteers.
G. W. Courtney, Cork R.G.A.

THE ADVERTISEMENT DEPARTMENT OF THIS JOURNAL IS CONDUCTED BY GILBERT-WOOD'S ADVERTISING OFFICES, DACRE HOUSE, ARUNDEL STREET, STRAND, LONDON, W.C., WHERE ALL COMMUNICATIONS SHOULD BE ADDRESSED.
TELEPHONE NO. 4080 GERRARD.